PROVINCE OF BRITISH COLUMBIA.

REPORT

OF THE

PROVINCIAL MUSEUM

FOR THE YEAR 1912.

THE GOVERNMENT OF
THE PROVINCE OF BRITISH COLUMBIA.

Smithsonian Institution
NOV 8 1913
226873
National Museum

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AUTHORITY OF THE LEGISLATIVE ASSEMBLY.

VICTORIA, B.C.:
Printed by WILLIAM H. CULLIN, Printer to the King's Most Excellent Majesty.
1913.

Mr. Brockett
requested
Dec. 2/13 to
get earlier
numbers.

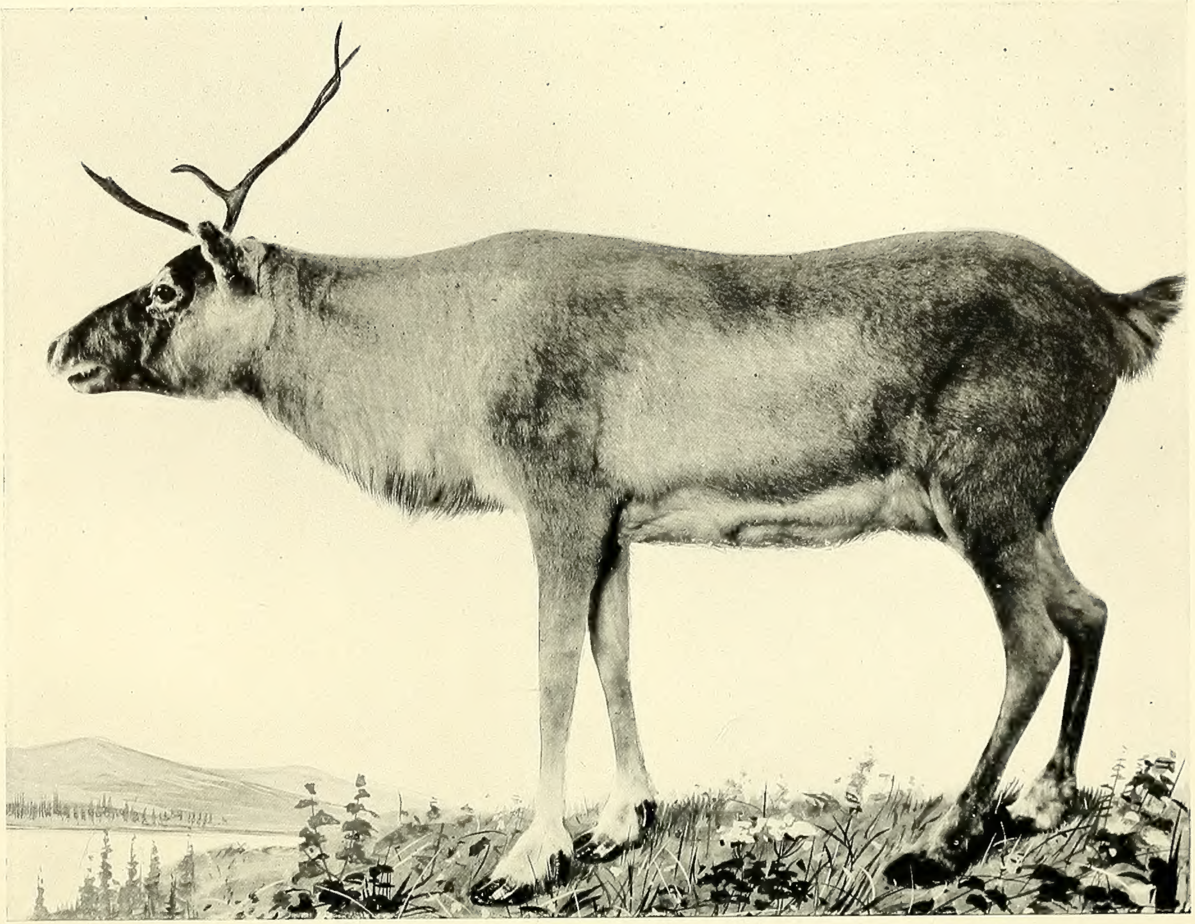
Mr. Hollister & Riley p. 5
Visit to Nat. Mus. p. 6
Bird Skins from Nat. Mus. p. 8
Mammal-Skins from Nat. Mus. p. 9
Publications from Nat. Mus. p. 19

R R. NOV 18 1913

This is the only report the Mus. has from the Provincial Mus. Shall an effort be made to secure earlier ones – if they exist. I judge they do.

Yes. Rn

Hall



QUEEN CHARLOTTE CARIBOU (*Rangifer dawsoni*, Seton-Thompson).
Virago Sound, Queen Charlotte Island, November, 1908.

QH
71
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PROVINCE OF BRITISH COLUMBIA.

British Columbia Provincial Museum

REPORT

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of Natural History/

FOR THE YEAR 1912.

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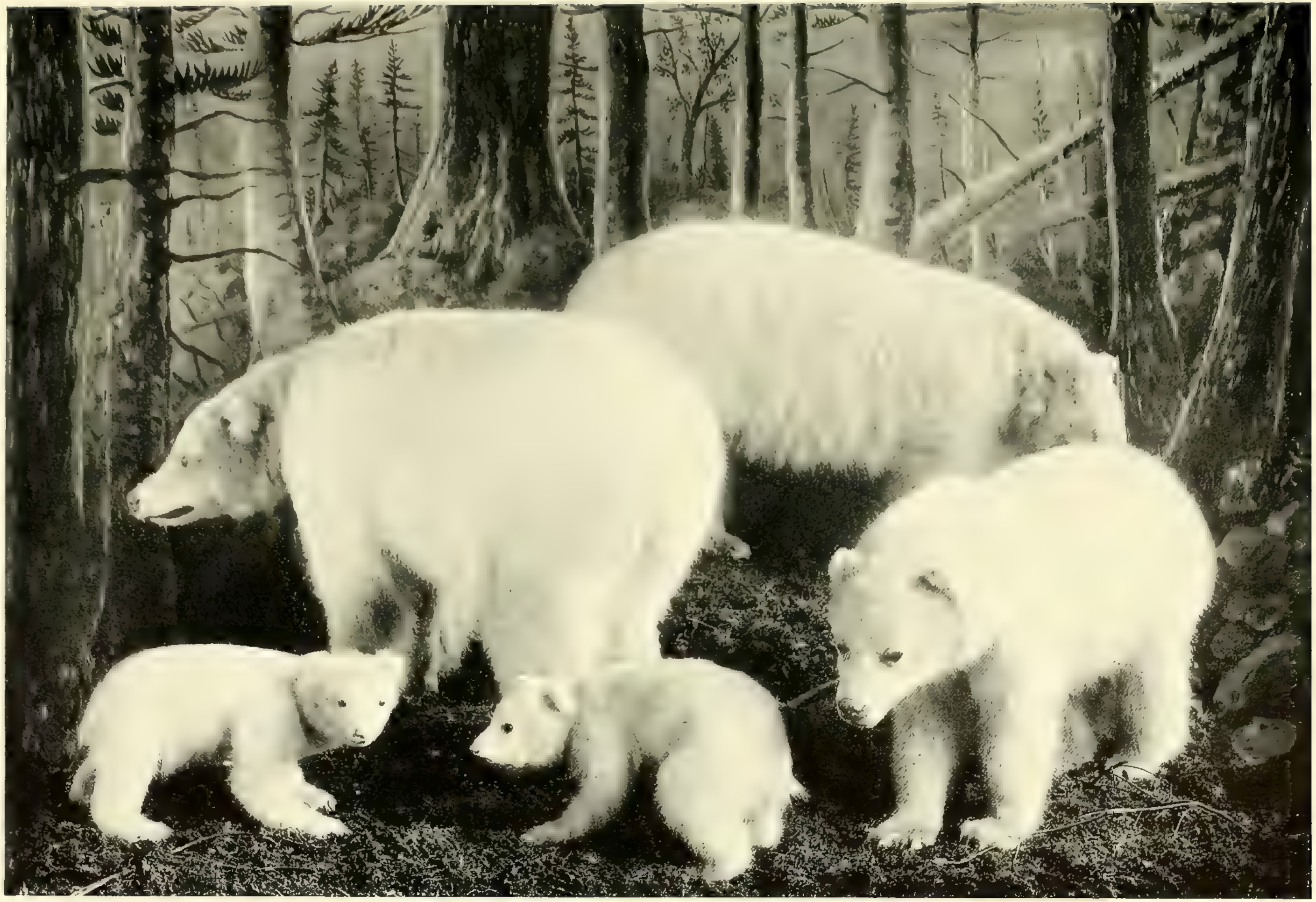
1913.

Provincial Museum,
Victoria, B.C., February, 1913.

The Honourable H. E. Young, M.D.,
Provincial Secretary, Victoria, B.C.

Sir,—I have the honour, as Curator of the Provincial Museum, to lay before you the report for the year 1912, covering the activities of the Museum.

I have the honour to be,
Sir,
Your obedient servant,
FRANCIS KERMODE,
Curator.



KERMODE'S WHITE BEAR (*Ursus kermodei*, Hornaday).
(Type Specimen.) Group in Provincial Museum, Victoria, B.C.

PROVINCIAL MUSEUM REPORT

FOR THE YEAR 1912.

Early in January the interior of the Museum was painted and thoroughly renovated; this was badly needed, and was made more necessary on account of having to move the bird-cases from the walls in order to make more space to accommodate four new bird-cases, which were made under the supervision of the Government carpenter on the premises.

The new arrangement of the cases on the upper floor made considerably more room, and I consider the arrangement much better. The collection of birds was thoroughly gone over, rearranged, labelled, and a large number of specimens added. Several new mammals have also been added to the ground-floor, and a large number of heads have been mounted and hung on the walls, of which some are records.

At present all the specimens in the Museum are too overcrowded to allow visitors to properly inspect them, and I have had to defer the mounting of any more mammals or groups until such time as we have space; therefore, most of the work performed in the workshop at present is confined to preserving the specimens and placing them in storage (which is also limited).

During the spring I made a trip to the interior and secured heads of the local mammals; a number of these were mounted and hung on the walls at the Government House by request of His Honour the Lieutenant-Governor. A collection of heads is also in preparation for the Agent-General's office in London, which will be of great interest and value to British Columbia.

The correspondence in the Curator's office is increasing, and keeps in touch with all the leading museums.

A great many applications have been made by school-teachers (more especially in the United States) for copies of the Natural History Bulletins to be used in their nature studies. Considerable correspondence is carried on with the people of the Province in regard to our native fauna.

A number of books and pamphlets have been received for the Museum Library from various museums in the United States and the United Kingdom, referring to the study of natural history in all its branches.

Dr. C. F. Newcombe has continued his research, and also in collecting anthropological material relating to the aboriginal races of the Province, and has secured a large collection of specimens (which have been placed in storage), together with data of the various tribes. The Anthropological Department is at present receiving special attention, before it becomes too late to gather all the material and information relative to the Indians of British Columbia (which at one time was a great race). I would like to suggest, if it were possible to interest a few, if not all, of our road foremen, surveyors, and engineers in construction camps, that they look out for archæological specimens and forward them to the Provincial Museum; their doing so would greatly assist us in our efforts to retain for this Province valuable specimens, which otherwise may be taken out and lost to us for ever.

The Provincial Museum has been very fortunate in having the co-operation of two of the experts from the Smithsonian Institution at Washington, D.C.—N. Hollister, of the Division of Mammals, and J. H. Riley, of the Division of Birds—who accompanied Director A. O. Wheeler, of the Alpine Club of Canada, on an expedition to the Yellowhead Pass and

Mount Robson region in the summer of 1911. A small appropriation was made to Director Wheeler, who had offered to look after specimens for the Provincial Museum. I met the party on their return to Edmonton, Alberta, and arranged with Messrs. Riley and Hollister that, after they had taken the collection to the Smithsonian Institution and examined the specimens, they would send a report on the birds and mammals of that district, also to send the Provincial Museum duplicates of the birds and mammals collected.

The reports have been received, also the specimens, several of which are new species, being described by N. Hollister.

E. M. Anderson, Assistant Curator, was Acting-Curator from May to August, during the Curator's visit East and to Europe, who had gone to study plans, arrangement, and management of the larger institutions of America and Europe, in preparation for the new Museum to be built in Victoria, and also to attend the annual meeting of the American Association of Museums.

The first museum visited was the Field Museum of Natural History at Chicago; second, the Smithsonian Institution and National Museum at Washington, where considerable time was spent in going over the vast collections, also through all the departments of the Biological Survey. I was loyally received and entertained and extended every privilege by the Secretary, Dr. Chas. D. Walcott, Mr. Rathbun, Dr. Merriam, Director Henshaw, and others of the staff of the Smithsonian Institution.

From Washington I proceeded to New York City, and attended the meeting of the American Association of Museums, held June 4th to 7th, 1912, in the lecture-room of the American Museum of Natural History. The meetings were presided over by the President, Prof. Ed. S. Morse, of the Peabody Museum, Salem, Mass. The address of welcome was delivered by Prof. Henry Fairfield Osborn, President of the American Museum of Natural History; followed by the roll-call, eighty-four members answering their names, being representatives from nearly all the leading museums in America.

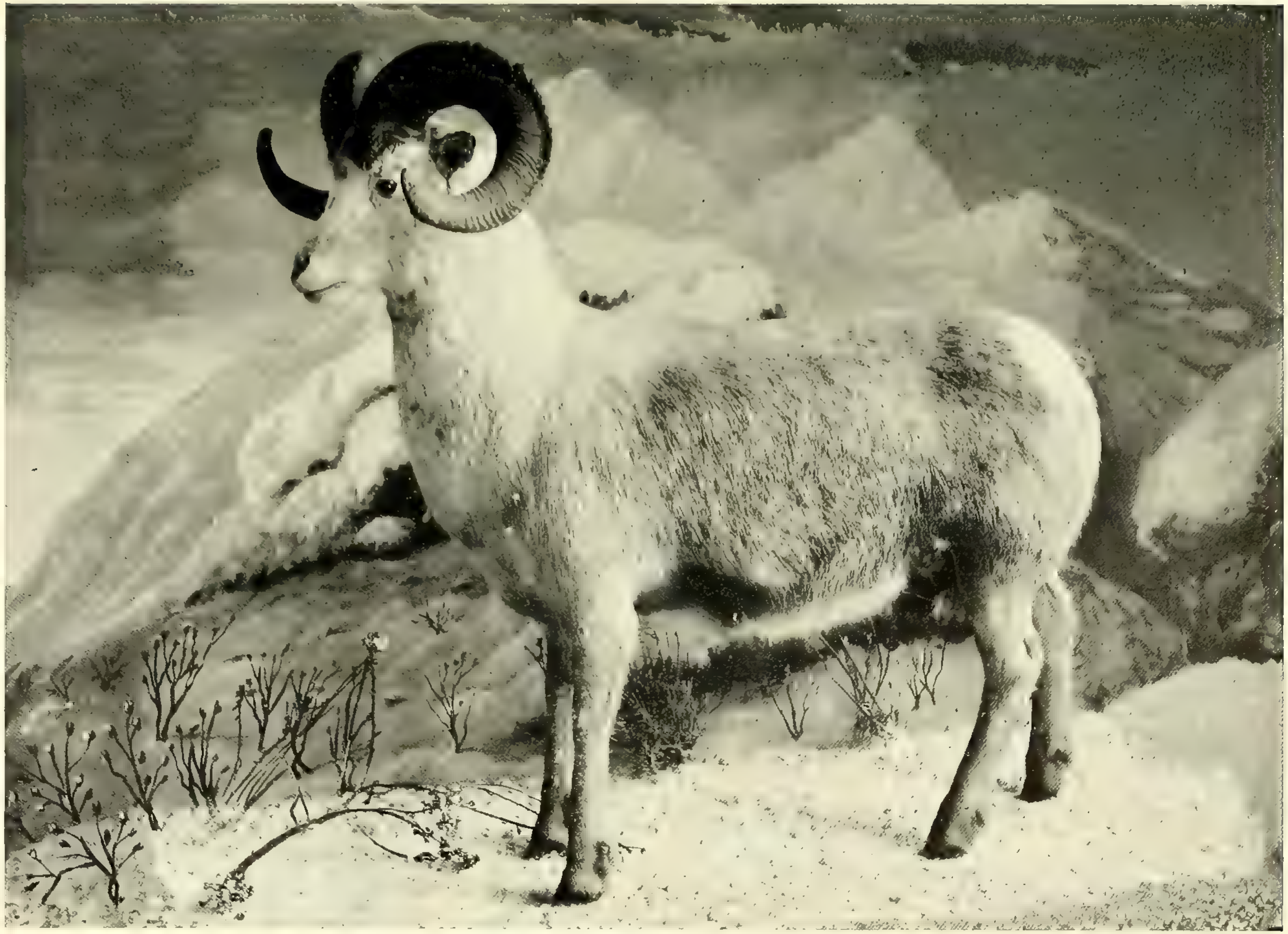
Papers were read on care, management, preservation of specimens, and other matter relating to museum-work, and discussions after each. Upon invitation, meetings were held at the Metropolitan Museums of Art, and also at the Museum of the Brooklyn Institute.

After each meeting sufficient time was given for the inspection of the collections, offices, and laboratories.

Previous to the meeting of the Association of Museums, I visited the American Museum of Natural History, and was well received by Dr. Lucas, the Director, and personally conducted by him over that magnificent institution, and was given a great amount of information in regard to the Museum and museum-work.

After the Association of Museums adjourned, I left New York for London, England, and there visited the Natural History Museum and other museums, and was received by Director Fletcher and Prof. Lydekker. I inspected the vast collection of valuable material to be seen in the institution. While in London I received an invitation from the Right Honourable Lord Pontypridd, President of the National Museum of Wales, at Cardiff, through Dr. Hoyle, the Director, to be present at the laying of the foundation-stone of the new National Museum in that city by His Majesty King George the Fifth on July 26th, 1912.

The ceremony took place in the presence of nearly three thousand people, representing all classes of the community and all parts of the principality. His Majesty's gracious words in reply to the loyal address presented to him, the interest he displayed in the details of the model, and his remarks to the officers of the Museum gave abundant evidence of his cordial approval of the enterprise and his desire for its success. The proceedings were carried out in the brilliant sunshine, and gave full satisfaction to all concerned.



FANNIN'S MOUNTAIN SHEEP (*Ovis fanninii*, Hornaday).
(Type Specimen.) Provincial Museum, Victoria, B.C.

The Council was specially gratified by the friendly interest manifested in the event by kindred institutions both in the British Isles and abroad. The American Museum of Natural History, New York, honoured the Museum by sending over its Director, Dr. Lucas, to represent it at the ceremony, and the Metropolitan Museum of Art, New York, appointed Dr. Ed. Robinson and Mr. W. R. Valentiner to attend on its behalf. Dr. C. W. Beebe, the Curator of Birds, represented the New York Zoological Gardens, and Mr. F. Kermode, the Provincial Museum, Victoria, B.C. Sir Cecil Harcourt Smith and Mr. C. E. Fagan represented the Victoria and Albert Museum and the British Museum respectively. Heads of many other kindred institutions in England also attended, including Dr. W. M. Tattersall, Manchester; Mr. T. Sheppard, Hull; Alderman J. Fuller Eberle (Chairman of the Museum Committee); Mr. H. Bolton; and Mr. R. Quick, of Bristol.

At the ceremony I met the Director of the Bristol Museum, Mr. H. Bolton, who visited the Provincial Museum with the British Association when they came to America for their meeting, extending their trip to British Columbia. Upon invitation of Director Bolton and Mr. J. Fuller Eberle, the Chairman of the Board of Directors of the Bristol Museum, I visited Bristol and received a cordial welcome, and was shown considerable material of interest regarding museum-work. After leaving Bristol I visited the Natural History Museums in Paris, Frankfurt, Berlin, and Hamburg, on the Continent, which were of great interest to me as one who is interested in the condition of the educational value of an up-to-date museum. From Hamburg I went to Edinburgh, Scotland, and visited the Royal Scottish Museum, and was taken over the collection by the Director, Sir T. Carlow Martin, LL.D.

Leaving Edinburgh, I went to Liverpool and visited the Natural History Museum under the direction of Dr. J. A. Clubb.

On my return to Canada I visited the Museums at Quebec and Ottawa.

In conclusion, I may say that, having been permitted by the Government to visit these large institutions of the world, it has been a great education to me, and I hope that when the new Museum is built I shall be able to carry out some of the ideas that I have formed of what an educational museum should be, and also what it means to the community at large.

The Provincial Museum has been honoured by the visits of several leading men in science, who expressed themselves as deeply interested in what they inspected, and that the Provincial Museum had exceeded all their expectations as a Provincial collection.

Dr. A. R. Crook, Director of the Illinois State Museum of Natural History, whom I met at the meeting of the American Museums Association, and who has since visited our Museum, had nothing but praise, and said that it was the finest local collection he had ever seen.

The most distinguished personages who visited the Museum were the Royal party, Their Royal Highnesses the Duke and Duchess of Connaught and Princess Patricia, who spent some time in going over the collection, and expressed admiration of the big-game and anthropological collections.

Attendance.

The attendance showed a slight increase over 1911—37,897 visitors signing the register. I venture to say that, on an average, about one in five of the travelling public insert their names in the book.

The Museum is open to the public (free) every week-day (except New Year's Day, Good Friday, and Christmas) from 9 a.m. to 5 p.m., and on Sunday afternoons, from the first Sunday in May to the last Sunday in October, from 1 p.m. to 5 p.m.

ACCESSIONS TO THE PROVINCIAL MUSEUM DURING 1912.

BIRDS.

White-tailed Ptarmigan (*Lagopus leucurus*), male and female, Barkerville, B.C., C. W. Grain, January 5th, 1912.

California Partridge (*Callipepla californica*), Cadboro Bay, E. M. Anderson, January 9th, 1912.

Reeves Pheasant (*Phasianus reevesii*), Nanaimo, B.C., Dr. Brown, January 29th, 1912.

Oregon Ruffed Grouse (*Bonasa umbellus sabini*), female, Mount Skirt, Goldstream, E. M. Anderson, February 1st, 1912.

Marbled Murrelet (*Brachyramphus marmoratus*), Saanich, B.C., J. R. Anderson, March 6th, 1912.

Sooty Grouse (*Dendragopus obscurus fuliginosus*), two males, Shawnigan Lake, E. M. Anderson, March 22nd, 1912.

Sooty Grouse (*Dendragopus obscurus fuliginosus*), female, Shawnigan Lake, E. M. Anderson, March 22nd, 1912.

Sharp-shinned Hawk (*Accipiter velox*), Victoria, Dr. Hasel, March 26th, 1912.

Mongolian Pheasant (*Phasianus torquatus*), male, Vancouver, A. Bryan Williams, March 28th, 1912.

Trumpeter-swan (*Olor buccinator*), Kamloops, Mr. Pearce, March 29th, 1912.

Red-backed Rufous Humming-bird (*Selasophorus rufous*), New Westminster, J. D. McDonald, August 14th, 1912.

Pigeon Guillemot (*Cepphus columba*), Victoria, P. Walker, August 19th, 1912.

Dark-bodied Shearwater (*Puffinus griseus*), Sidney Williams, Sidney, B.C., October 19th, 1912.

Ring-neck Pheasant (*Phasianus torquatus*), Cedar Hill, near Victoria, E. M. Anderson, November 21st, 1912.

Golden Pheasant (*Thaumalea picta*), Saanich, E. Wall, December 12th, 1912.

Cackling-goose (*Branta canadensis minima*), female, Parksville, H. Rawlins, December 1st, 1912.

California Murre (*Uria troile californica*), two males, three females, Saturna Island, F. Kermode and P. Walker, December 10th, 1912.

Ancient Murrelet (*Synthliboramphus antiqus*), four specimens, Saturna Island, F. Kermode and P. Walker, December 10th, 1912.

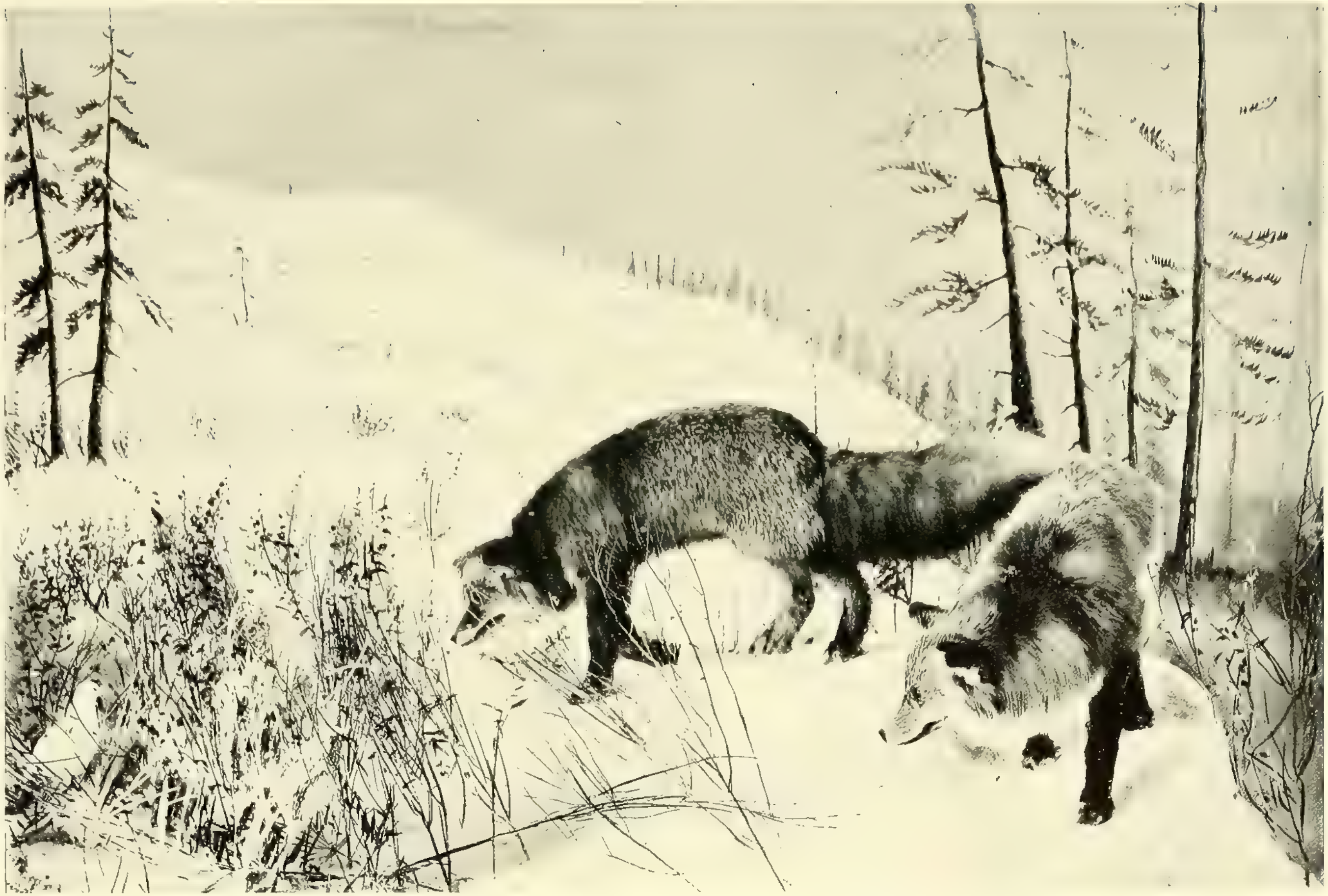
Hooded Merganser (*Lophodytes cucullatus*), female, Parksville, B.C., H. Rawlins, December 12th, 1912.

Hooded Merganser (*Lophodytes cucullatus*), female, Saturna Island, F. Kermode and P. Walker, December 10th, 1912.

American White Pelican (*Pelecanus erythorhynchos*), Prince Rupert, W. H. Sherman (purchased), December 20th, 1912.

BIRD-SKINS PRESENTED BY UNITED STATES NATIONAL MUSEUM, AUGUST 10TH, 1912 (J. H. RILEY).

Steller's Duck (*Eniconnetta stelleri*), male and female.
White-tailed Ptarmigan (*Lagopus leucurus*).
Franklin's Grouse (*Canachites franklini*), young.
Clarke's Nutcracker (*Nucifraga columbiana*).
Steller's Jay (*Cyanocitta stelleri*).
Alaskan Jay (*Perisoreus canadensis fumifrons*).
Rocky Mountain Jay (*Perisoreus capitalis*).
Desert Sparrow-hawk (*Falco sparverius phalæna*).
Lewis' Woodpecker (*Asyndesmus torquatus*).
Western Robin (*Merula migratoria propinqua*).
Red-winged Thrush (*Hylocichla aliciæ*).
Russet-backed Thrush (*Hylocichla ustulata*).
Olive-backed Thrush (*Hylocichla ustulata swainsonii*).
Olive-sided Flycatcher (*Contopus borealis*).



BRITISH COLUMBIA RED FOX (*Vulpes alascensis abietorum*, Merriam).

Western Wood Pewee (*Contopus richardsonii*).
Least Flycatcher (*Empidonax minima*).
Western Flycatcher (*Empidonax difficillis*).
Hammond's Flycatcher (*Empidonax hammondi*).
Traill's Flycatcher (*Empidonax trailli*).
Say's Phœbe (*Sayornis saya*).
Black Phœbe (*Sayornis nigricans*).
Bohemian Wahwing (*Ampelis garrulus*).
Long-tailed Chicadee (*Parus atricapillus septentrionalis*).
Mountain Chicadee (*Parus gambeli*).
Western Warbling Vireo (*Vireo gilvus swainsonii*).
Tennessee Warbler (*Helminthophila peregrina*).
Lutescent Warbler (*Helminthophila peregrina*).
Pileolated Warbler (*Wilsonia pusilla pileolata*).
Macgillivary's Warbler (*Geothlypis tolmiei*).
Black-throated Grey Warbler (*Dendroica nigrescens*).
Audubon's Warbler (*Dendroica auduboni*).
Long-tailed Chat (*Icteria virens longicauda*).
American Pipit (*Anthus rubescens*).
Pine Siskin (*Spinus pinus*).
Greenland Redpool (*Anthus hornemannii*).
Redpool (*Anthus linaria*).
Oregon Towhee (*Pipilomaculatus oregonus*), male and female.

MAMMAL-SKINS FROM UNITED STATES NATIONAL MUSEUM.

(Collected by Hollister and Riley in the Yellowhead District.)

6 Chipmunk (*Eutamias ludibundus*).
2 Northern Chipmunk (*Eutamias borealis*).
2 Chapman's Leeming Vole (*Synaptomys chapmani*).
6 Drummond's Meadow Vole (*Microtus drummondi*).
6 Cantankerous Meadow Vole (*Microtus mordax*).
1 Richardson's Meadow Vole (*Microtus richardsonii*).
6 Hudson Bay Chicaree (*Sciurus hudsonicus*).
7 Red-backed Vole (*Evotomys saturatus*).
2 Dusky Shrew (*Sorex obscurus*).
2 Masked Shrew (*Sorex personatus*).
4 Spermophile (*Callospermophilus tescorum*).
1 Chief Pika (*Ochotona princeps*).
5 Northern Field-mouse (*Peromyscus borealis*).
6 Field-mouse (*Peromyscus artemisæ*).
3 Rocky Mountain Jumping Mouse (*Zapus princeps*).
1 Mountain Vole (*Phenacomys species ?*).

MAMMALS.

Vancouver Chicaree (*Sciurus hudsonicus vancouverensis*), male and female, Cedar Hill, near Victoria, E. M. Anderson, January 16th, 1912.
White-tailed Deer (*Odocoileus virginianus*), male, Elko, B.C., C. J. Lewis, January 16th, 1912.
Fannin's Sheep (*Ovis stonei*), male, Carcross, Y.T., Colonel Conrad (purchased), September, 1912.
Black-tailed Deer (*Odocoileus columbianus*), male, Cumberland, B.C., killed and presented by Robert Grant and S. Shaw, November 9th, 1912; weight, 200 lb.
Wild-cat (*lynx rufa*), three purchased from W. Lindley, Victoria, April 2nd, 1912.
Flying Squirrel (*Sciuropteras alpinus kalmathensis*), Broadwater, B.C., A. Campbell, December 11th, 1912.

OOLOGY.

During the year 130 specimens of birds' eggs have been added to the collection, comprising twenty-seven species, twelve new to the collection.

A fine series of eggs collected at Salt Lake by Dr. David Moore Lindsay was sent in exchange for duplicates in our collection, viz.:—

1 Least Tern (*Sterna antillarum*).
3 Common Tern (*Sterna hirunda*).
4 American White Pelican (*Lelecanus erythrorhynchos*).
8 White-faced Glossy Ibis (*Plegadis guarauna*).
10 Snowy Heron (*Ardea candidissima*).
12 Black-crowned Night Heron (*Nycticorax nycticorax nævius*).
25 American Avocet (*Recurvirostra americana*).
20 Black-necked Stilt (*Himantopus mexicanus*).
4 Wilson's Snipe (*Gallinago delicata*).
8 Kildeer (*Ægillitis vocifera*).
3 Snowy Plover (*Ægillitis nivosa*).
9 Brewer's Blackbird (*Scolecophagus cyanocephalus*).
4 Sage Thrasher (*Oroscoptes montanus*).

North-west Crow (*Corvus Caurinus*), five in set, Victoria, E. M. Anderson, May 9th, 1912.

Gairdner's Woodpecker (*Dryobates pubescens gairdneri*), six in set, Victoria, E. M. Anderson, May 9th, 1912.

Sooty Grouse (*Dendragopus obscurus fuliginosus*), six in set, nest also contained three eggs of California Partridge (quail), Cedar Hill, S. Whittaker, May 10th, 1912.

Parkman's Wren (*Troglodytes ædon Parkmani*), seven in set, Cedar Hill, D. Irving, June 12th, 1912.

Northwestern Flicker (*Colaptes cafer saturatior*), seven in set, Cedar Hill, D. Irving, May 26th, 1912.

Western Chipping Sparrow (*Spizella socialis arizonæ*), four in set, Cedar Hill, D. Irving, May 26th, 1912.

Nuttall's Sparrow (*Zonotrichia leucophrys nuttallii*), four in set, Cedar Hill, D. Irving, June 4th, 1912.

Nuttall's Sparrow (*Zonotrichia leucophrys nuttallii*), five in set, E. M. Anderson, Victoria, May 19th, 1912.

Western Vesper Sparrow (*Pooecetes graminius confinis*), four in set, C. de B. Green, June, 1912.

Alaskan Yellow Warbler (*Dendroica æstiva rubiginosa*), four in set, Cedar Hill, D. Irving, May 26th, 1912.

Alaskan Yellow Warbler (*Dendroica æstiva rubiginosa*), five in set, Victoria, E. M. Anderson, May 19th, 1912.

Brewer's Blackbird (*Euphagus cyanocephalus*), six in set, C. de B. Green, June 11th, 1912.

Sage Thrasher (*Oroscoptes montanus*), C. de B. Green, nest and eggs, four in set; presented June, 1912.

Vigor's Wren (*Thryomanes bewickii spilurus*), D. Irving, five in set, Cedar Hill, July 12th, 1912.

FISHES.

Wolf Eel (young), Victoria, April 23rd, 1912.

Acrotus willoughbi, Victoria, July 19th, 1912; cast up on the beach; J. Dixon. purchased (fourth specimen known to science).

Char, Dolly Varden Trout (*Salvelinus malma*), Lorne Creek, August 7th, 1912, E. B. Earle (G.T.P.).

MISCELLANEOUS.

Crawfish, Sooke, B.C., April 23rd, 1912.

Clam (*Glycerimis generosa*), Tofino, W. W. Rhodes, June 18th, 1912.

Rattlesnake (*Crotilus lucifer*), Ashcroft, H. Collins, May 10th, 1912.

Whale (*fœtus*), Victoria, B.C., Dr. Milne, December, 1912.

ANTHROPOLOGY OF BRITISH COLUMBIA.

Specimens collected by C. F. Newcombe, M.D., 1911.

Nootkan.

Harpoon-bag.
Cherry-bark.
Spear-bag.
Nose-pendant.
Halibut-hook.
Twisted gut.
Dentalia.
Pine-gum.
Doctor's head-dress.
Grease ladle strainer.
Belt.
Hook.
Wedge.
Wedge.
Awl.
Chisel, bone blade.
Mask, thunderbird.
" " female.
Carved birds with same (37).
Adze.
" handle carved.
" "
Fish gaff.
" lure.
" with hooks.
Cradle shape.
Bark-chopper.
Mat-maker's rubber.
" "
Hammer-stone.
Cradle of wicker.
Pads and bedding for same.
Whale-harpoon, small.
Elk-skin lashings.
Whale-harpoon, etched barbs.
Ceremonial bucket.
Rattle.
Thunderbird.
"
Mat-needles.
Cedar-twig lashings.
Whaler's charm.
Herring-net.
Tongs.
Hammer-stone.
Whale-harpoon.
Harpoon point, short line.
" head.
Totem-pole, Ohiat.
"
Totem-pole, Sarita.
"
Painted board, Sarita.

Bone spear, model.
" club, "
Whistle.
Drum-sticks.
Baler, carved.
Halibut-club.
"
Mask, Hai-ot-lik.
Spear-point, iron.
Pecten rattle.
Apron of cedar-bark.
Dentalium spear.
Hook-basket.
Basket and lid.
Dagger.
Net.
Coloured wool mat.
Chief's stick.
Anchor-stone.
Chief's bag of fibre.
Chisel.
Bark cradle.
Chest, carved, large.
Spinning disk.
Mat, rubber.
Adze.
Arrow, large, old.
" " "
Bailer.
Netting implements.
Chisel, old compound.
Maul.
Paddle.
Maul.
Native wool blanket.
Spoon.
Maul.
Slate knife, mounted.
Fish-club.
Wicker basket.
Woman's awl, bone.
Adze, D-shaped.
Basket.
"
Tump-line.
Basket, chip.
Mask, double.
Box.
Bow.
Quiver.
Arrow.
"
"

Nootkan.—Concluded.

Arrow.
Nettle fibre.
Spoon, wood.
Wedge.
Hammer.
Fish-gaff.
Bow.
Tackle-box.
Hook-bag.
Tackle-box.
Whale of wood.
Whistle of yew.
Large bag.
Skull charm.
Mask.
"
Sea-lion harpoon.
Whetstone.
Clam-dish.
Mat (bedding).
" "
" floor.

Nootkan (Ucluelet).

Mask.
"
Fish-lure.
Panther mask.
Doctor's head-dress.
Cradle of wood.
Bird rattle.
Board mask.
Panther-claws.
Scallop rattle.
Bone fish-knife.
Harpoon-socket (antler).
Skin hook-bag.
Seal-skin and frame.
Whaler's belt.
Box.
Mask.
Bird rattle.
Whaler's charms.
Hook-bag.
Mask.
"
Mat, cradle, etc.
Bone adze-handle.

Kwakiutl.

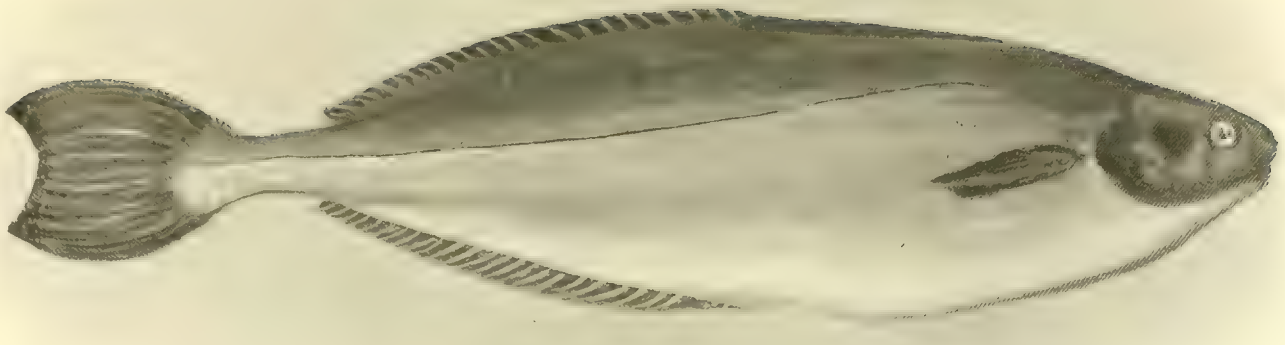
Dish.
"
"
"
"Fool" mask.
Mat.
Whale mask.
Cannibal bird mask.
Box.
Killer-whale dish.
" "
" "
Bear dish.
Beaver dish.
Stone hammer.
Chief's head-dress.
Potlatch figure.
" ladle.
Cannibal's rattle.
Goose mask.
Star "
Sun "
Potlatch dish.
" "
Carved seat, chief's.
Sea-otter tooth lid.
Loom.
Box.
Stone maul and handle.
Stone maul.
Tomahawk of stone.
Stone adze and handle.
Spindle, wood.
" bone.
Spoon, carved.
Soapberry spoons.
Straining-basket.
Potlatch figure.

Salish.

Infusorial earth.
Stone hammer.
Pitted stone hammer.
Rattle, bird-shaped.
Net, nettle thread.

Dene (Chilcotin).

Basket, small.
" "
" large.
" "
Basket, large.
" "
" "



WILLOUGHBY'S RAG FISH (*Acrotus willoughbi*, Bean).
Victoria, B.C., July, 1912. Two known specimens.

Haida.

"Copper" beaver crest.
Monument.
Carved sea-lion heads.
Eagle-whale mon't.
Sea-otter spear.
Halibut-hook, carved.
Sea-otter spear.
Black-cod kelp lines.
Set black-cod hooks.
Fisherman's basket.
Case of berry-spoons.
Chief's crest coat.
Halibut-line of spruce.
Carved stone maul.
Pestle-stone.
Stone adze.
Perforated stone.
Food-crusher.
Awl, canoe-maker's.
Canoe tackle-box.
Dance head-dress.
Spruce-root lashing.
Paddle.
Carved house-plank.
Halibut-hook, iron.
Stone mortar.
" war-club.
Tobacco-pestle.
"
Hand-hammer, very large.
Maul.
Stone labret.
Paint-stone.
Stone sinker.
Whetstone.
Stone chisel.
"
" (jade).
Knife-handle, carved.
Spoon mould and stick.

Sea-otter club.
" "
" bow.
Halibut-club, carved.
Fish hand-net.
Mesh-stick.
Salmon-spear points.
Hair-seal points.
Halibut-hook, carved.
" albatross.
" devilfish.
" puffin.
" albatross.
Tobacco-pestle.
Box of polished bones.
Halibut-float.
Dish, halibut.
" old type.
" seal pattern.
" very old.
" large, with cover.
Box, old, carved.
Berry-basket.
Spoon-basket.
Chief's head-dress.
Dance-blanket.
"
Carved canoe-dish.
Spear (devilfish).
Dish, line carving.
Chief's hat.
Raven mask.
Bear "
Mask.
Eagle mask.
Bear-skin robe.
Chief's chest (5 pieces).
Bone spearhead.
Model sail.
Large totem-pole.

Tsimshian.

Cradle.
Dance-hat, inlaid.
Maple-bark bag.
Stone club.
"
Stone club, Digby Island.
Mortar, grooved.
Skull.
"
"
" (fragment). } Gifts.
Femur.
Tibia.
Incised stone.

Carved stone horn.
Stone chopper.
Perforated stone fr.
Model bridge.
Loom.
Stone adze.
Salmon-spear.
Carved box.
Bark-chopper.
Berry-basket.
Totem-poles.
Doctor's crown.
Grooved stone.

SPECIMENS COLLECTED BY DR. C. F. NEWCOMBE, 1912.

Kwakiutl.

Carved stone axe, Rivers Inlet.
" " Cormorant Island.
Hat, Alert Bay.
" "
Cannibal mask (3 heads).
" "
" "
Wolf mask, large female.
"
"
"
Wasp mask.
Wind "
Dsonoqua mask.
Bark collar.
"
"
"
"
Drum.
Baton.
"
"
"
Mountain-goat mask.
Killer-whale dish.
Killer-whale dish (tail back).
Wolf dish.
"
Wolf mask.
"
"
Heligia mask.
"
"
Rattle.
Wind mask.
Sisiutl belt.
Killer-whale dish.
Hamspiq.
Potlatch figure.
Small stone hammer.
Wedges.
Ladle, eagle.
" wolf.
" plain.
" with head.
Spindle whorls.
"
"
Comb.

Chilcotin.

Basket.
"
"
"
"
Basket.
"
"
"
Leggings, Tsimshian.

Nootkan.

Paddle.
"
Hook-bag.
Blanket, Tsimshian.
Wedge-basket.
Tool-box.
Chisel.
Adze.
Knife.
"
"
Bag for above tools.
Fish-trap.
Basket (open work).
" (close weave).
Spoon.
Nettle fibre.
Berry-cake.
Awl.
"
Harpoon-barbs.
Yellow-cedar bark.
" "
" " (small).
Cape, yellow cedar bark, half made.
" " " quarter made.
Yellow cedar string.
" "
Seal-skin sturgeon float.
Sea-lion stomach oil-bag.
Hook-bag.
Arrows (4).
Rattle.
Bull roarers (2).
Bow, sea-otter.
Arrows (6).
Wedges (6) and basket.
Yellow cedar blanket and loom.
Bark strips.
"

Nootkan.—Concluded.

Medicine-bag of cedar-bark.
Dip-net and lure.
Medicine-bag.
Vegetable food.
Bow and arrows for birds.
Small mat.
Needle, bone.
Club, ″
Adze, ″
Carved ″
Mask, ″
Thunderbird (Macquiller).
Harpoon, etched barbs.
Whale charm, carved.
″ ″
Nettle fibre.
Stone hammer.
Mat.
″
War-club.
Carved bone.
Hat.
Basket.
Sea-otter arrow-box.
Tackle-box.
Club, dogfish.
Sea-otter spear.
Potlatch mask, man's face.

Rattle, skull.
″ ″
Whistle.
″ (6), long.
Bear-skin on drying-frame.
Doctor's bark ring.
Slave-killer, model.
Dish, carved and painted whale.
Hamatsa's blanket.
″ mask.
″ leggings.
″ armlets.
″ apron.
″ stomacher.
″ collar.
″ head-dress.
″ whistles (12)
Bow.
Arrows.
Box.
Blanket-pin, bone.
Bailer.
Sinker.
Stone hammer.
Seal dish.
Slave-killer, stone, broken.
Chief's grave crest and beam, Campbell River.

Tsimshian.

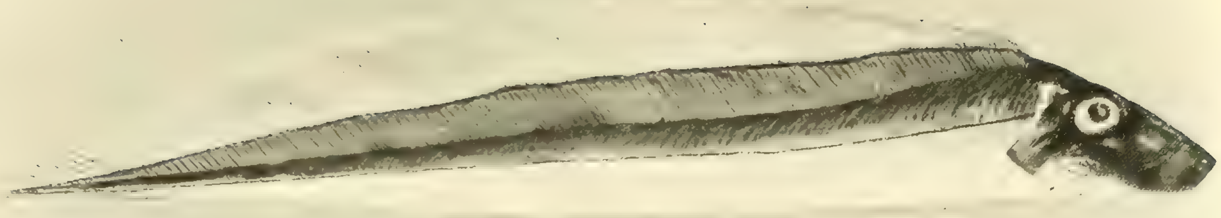
Mask, old, grouse.
″ small human face.
″ ″ ″
″ ″ ″
″ ″ ″
″ with frog.
″ red-wing flicker.
″ fool (1), bow (2), dagger (3).
″ nigger (1), wooden spear (2).
″ death's head (1), heart (2), owl (3).
Marmot-skin.
Salmon.
Spinning whorl.
Loom.
Paint-sticks for gambling set.
Gauge for ″
Equisetum ″
Arrow, club-shaped (cerem.).
Mask, monkey-face.
″ crying woman.
″ potlatch, man's face.
″ white man.
″ eagle.
″ ″ opens out.
Chisel.
″
Slate mirror.

Food-tray.
″ small.
Bag of cedar bark.
Mat ″
Ladle.
″
Club, model of wood.
Charm, golden eagle.
Mask, doctor's.
″ man's face.
″ simple woman.
Seaweed chopping-block.
Chest, carved.
Feather-case.
Wolf crest of yew.
Hamatsa cedar-bark ring.
″ ″ ″
″ ″ ″
″ ″ ″
Hamatsa mask.
″
″
″
Bone-scraper.
Head of human figure.
Gambling-sticks.
Spindle-rest.

Tsimshian.—Concluded.

Chief's blanket.
Soapalali spoons.
Kingfisher, carved.
Halibut-hook.
〃
〃
Awl-point, bone.
Chisel-point, bone.
Bone awl.
〃
Needles, long bone (16).
Bark-splitters, bone (3).
Short barbs and points (24).
Flat instruments (9).
Barbed points (2).
Antler 〃 (2).
Harpoon-point, barbed.
〃 〃
〃 〃
〃 not barbed.
Harpoon-head, broken in three pieces.
Drinking-tube, bone.
Chisel, antler.
Sea-lion teeth (2).
Small teeth (3).
Beaver-tooth in jaw.
Slate instruments (6).
Spear-point, stone.
Chisel, small jade.
Stone, semicircular, perforated.
〃 grooved.
〃 drilled (sinker?).
Polishing-stone, curved.
Hammer, small-pointed.
Bark-chopper, stone.
〃 〃
Whetstone, large.
Adze, stone.
Nodule, clay, etched.
Hand-hammer, flat oval, partly grooved.
〃 〃
〃 〃
〃 〃
〃 〃
〃 〃 plain.
〃 〃 〃
〃 〃 double-pitted.
Maul, perforated.
Pestle, stone.
〃 〃
〃 〃
〃 〃
〃 〃
〃 〃
〃 〃

Pestle, stone.
〃 〃
〃 〃
〃 〃
〃 〃
Mortar, large-grooved.
〃 〃
〃 plain.
〃 〃
〃 fragment of.
〃 〃
Whetstone.
〃
〃
〃
Mirror, slate.
Rubbing-stone, red, oval.
〃 〃
〃 〃
〃 broken
Sinker, oval.
Rubbing-stone.
〃
〃
〃
〃
〃
〃
〃
〃
〃
〃
〃
〃
〃
〃
〃
〃
Spherical stone.
Stone, L-shaped.
〃 〃
〃 〃
Stone, hammer-shaped.
Stones, 〃
Stone, boomerang-shaped.
Skull.
〃
〃
Thigh-bone.
Stone disk.
Sinker, flat notched.
Rubbing-stone for bow-strings.
Chipped flint point
Large whale-bone.



KING OF THE SALMON (*Trachypterus rex-salmonorum*, Jordan and Gilbert).
Sherringham Point, Vancouver Island, 1907. Fifth known specimen.

Salish.

Basket.
"
"
"
"
"
"
"
"
"
"
Snow-shoes.
Moccasins.
Adze-handle, carved.
Fish-spear.
Sturgeon-club.
Loom.
Spindle whorl.
"
Goat's wool in ball.
Totem-pole.
"
Mask from Comox
Hammer-stone.
"
"
"
"
"
"
"
"
"
"
"
Bow and arrows (4).
" " (3).
Rattles, leg and arm.
Hat.
Mat-creaser.

Mat-creaser.
Halibut-hook.
"
Bow-strings of sea-lion gut.
Spinning whorl and stick.
Wedge, elk-horn.
War-club, model.
River-canoe, model.
Lehal.
Slehallum.
"
Slate knife.
"
"
"
Slate spear-point.
Arrow-points (6).
Chisel, stone.
" "
" "
" "
" "
" "
" "
" "
" "
" "
Point, barbed, bone.
Sea-lion spear-point, iron and lanyard.
Perforated stone sinker.
Ladle of wood.
Spoon.
Mask.
Hair head-dress.
Beaver-tooth game.
" (1 missing).
Labret.
Sinker, oval stone.
Counters for gambling game.

SPECIMENS COLLECTED BY J. A. TEIT FROM THE INTERIOR OF BRITISH COLUMBIA, 1911-12.

Interior Salish (Ntlykyapamal, Countean, or Thompson Tribe).

22 lodge mats.
1 mat, rushes and rabbit-skins.
1 " " and bark.
1 bag, buckskin.
1 pair snow-shoes.
1 bag of hide.
1 bag, buckskin (beaded).
1 slipper, sage-brush bark.
1 pair buckskin moccasins.
1 cap, woman's, buckskin.
1 shirt, boy's, "
1 child's carrier of dressed moose-skin.
1 strap ornament.
2 boys' caps, skin.

1 man's bonnet, skin.
1 cape, buckskin.
2 spoons, juniper-bark.
1 spoon, horn.
1 charm.
1 necklace (bear-teeth).
1 " beads, etc.
1 " porcupine-quills.
1 " beads and dentalia.
2 arrows, wood.
9 chipped stones.
1 buckskin string.
1 girl's drinking-tube of lynx-bone.
1 " bone-scratcher.

Interior Salish (Ntlykyapamal, Countean, or Thompson Tribe).—Concluded.

- 1 spoon, sheep-horn.
- 1 bag.
- 1 ″ bark.
- 1 ″ hemp.
- 1 ″ fringed buckskin.
- 1 stone hammer.
- 1 basket, birch.
- 1 ″ circular tray.
- 1 ″ oblong.
- 1 ″ trunk.
- 1 parfliche.

Athapascan (Tahltan Tribe of the Nahanis).

- 1 game-bag of hide.
- 1 ″ netted.
- 1 pack-strap.
- 1 pair moose-skin moccasins.
- 1 pair moose-skin moccasins, quill-work.
- 1 necklace (dentalium shells).
- 1 hat-band, beaded.

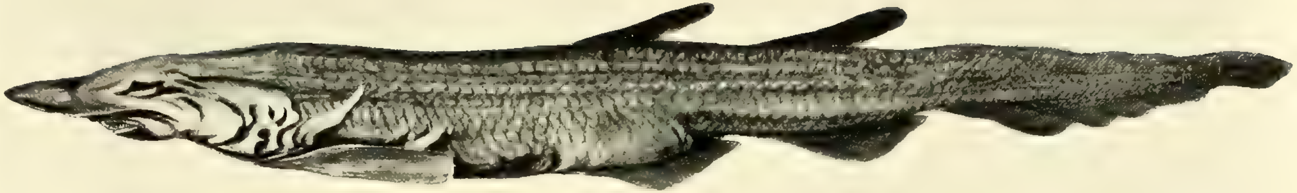
ENTOMOLOGY.

INSECTS COLLECTED BY E. M. ANDERSON, 1912.

Pontia occidentalis (Reak), May 29th, 1912.
Oenis gigas (Butler), Mount Finlayson, July 7th, 1912.
Samia rubra (Behr), Victoria, July 6th, 11th, 1912.
Telea polyphemus (several taken at night), Victoria, June and July, 1912.
Pseudohazis eglanterina (Bdv.), sheep-moth, Goldstream, June 2nd, 1912.
Apantesis ornata (Pack), Victoria, May 28th, June 7th, 1912. Var. *achaia* (G. & R.).
Apatela perdita (Grote), Victoria, May 24th, 1912.
Hadena cinefacta (Grote), Victoria, May 20th, 1912.
″ *claudens* (Walker), Victoria, May and June.
″ *cerviana* (Smith), Victoria, June 4th, 1912.
Polia epichysis (Grote), Victoria, May 17th, 1912.
Feralia columbiana (Smith), Victoria, May 2nd, 1912.
Rhynchagrotis costata (Grote), Victoria, June 19th, 27th, 28th, 1912.
Noctua inopinatus (Smith), Victoria, Aug. 3rd, 6th, 1912.
Paragrotis vestusta (Walker), Victoria, Aug. 10th, 1912.
″ *titubatis* (Smith), Victoria, Sept. 11th, 1912.
″ *satis* (Harvey), Victoria, Aug. 4th, 1912.
Autographa selecta (Walker) Victoria, July 9th, 1912.
Catocala elda (Behr), Goldstream, July 17th, 1912.
Erebus odora (Linn), Victoria, Sept., 1912.

In addition to the above list there has also been added the following :—

Coleoptera,	78	specimens.
Lepidoptera,	300	″
Hyemoptera,	24	″
Diptera,	38	″



BROWN CAT SHARK (*Catulus brunneus*, Gilbert).
Taken at Nanaimo, B.C. Three known specimens.

PROVINCIAL MUSEUM LIBRARY—REPORTS AND PUBLICATIONS RECEIVED IN 1912.

FIELD MUSEUM OF NATURAL HISTORY, CHICAGO.

Publication 154—A Study in Chinese Archæology and Religion.
" 152—Antiquities from Boscoreale in Field Museum.
" 153—The Mammals of Illinois and Wisconsin.

PROCEEDINGS OF THE CALIFORNIA ACADEMY OF SCIENCES.

Expedition of the California Academy of Sciences to the Galapagos Islands.
Notes on the Botany of Crocas Island.
The Grekos of the Galapagos Archipelago.
Notes on the Reptiles from Southern California and Arizona.
Notes on some Reptiles and Amphibians from Oregon, Idaho, and Utah.
Geologic Range of Miocene Invertebrate Fossils of California.

UNIVERSITY OF CALIFORNIA PUBLICATIONS IN ZOOLOGY.

The Horned Lizards of California and Nevada.
On a Lymphoid Structure lying over the Myelencephalon of Lepisostens.
The Living Eggs of Rats and Mice, with Description of Observance.
History of the Marine Biological Station of San Diego.
Oxygen and Polarity in Pubularia.
The Occurrence and Vertical Distribution of Copepoda.
Observations on the Suckling Period of the Guinea-pig.
Haeckels, Radiolaria—a Marine Ciliate.
Report on a Collection of Birds and Mammals on Vancouver Island.
A New Cony from the Vicinity of Mount Whitney.
The Mole of Southern California. A Bat new to California.
The Bighorn of Sierra Nevada.
A New Peroganthus from the San Joaquin Valley, California.
The Beaver of West Central California.
The Two-pocket Gophers contagious in California and Arizona to Colorado River.

REPORT OF THE COOPER ORNITHOLOGICAL CLUB OF CALIFORNIA.

Birds of the Pacific Slope of Southern California.
A Systematic List of the Birds of California.

UNITED STATES NATIONAL MUSEUM, WASHINGTON.

New Mammals from Eastern Panama.
New Sub-species of Monkey from British East Africa.
The Genera of Fossil Whale-bones allied to Balonoptera.
Notes on Animals in the National Zoological Park.
Further Notes on the Breeding of the Black Bear in Captivity.
The names of the Large Wolves of Northern and Western North America.
New Rodents from British East Africa.
The Recognition of Pleistocene Faunas.
Directions for preparing Specimens of Mammals.
New Mammals from Canada, Alaska, and Kamaschatka.
Description of Twelve New Mammals from Panama.
The Crustacea of the Order Cumacea in the United States National Museum.
Preservation of Osseus and Horny Tissues.
A Revision of the Forms of the Edible-nest Swiftlet, Collacelia fuciphage.
A Small Collection of Bats from Panama.
Description of a New Species of Isopod from Japan (2).
Variation in the Skull and Horns of "Isabella Gazelle."

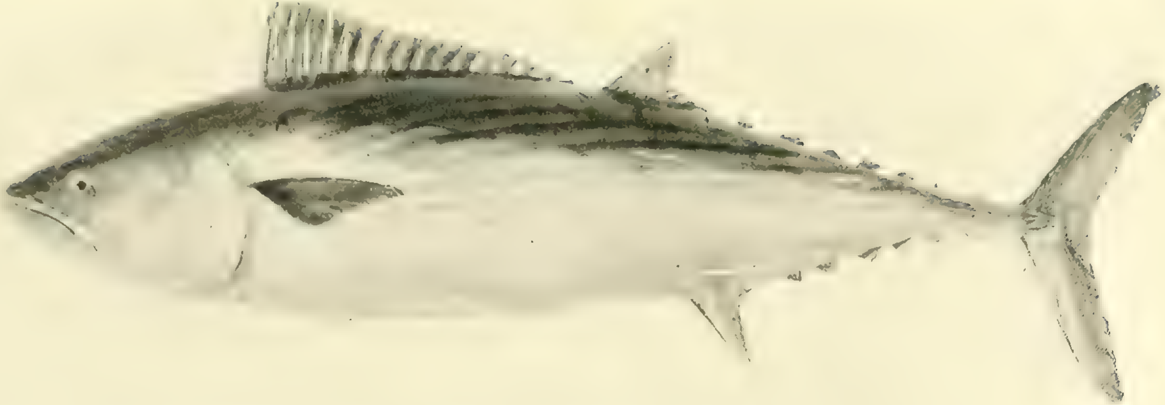
Instructions for collecting and fixing Rotifers in bulk.
Marine and Terrestrial Isopods from Jamaica.
A New Genus belonging to the Crinoid Family, Phrynocriniuidæ.
New Arenaceous Foraminifera from the Philippine Islands.
Descriptions of New Parasitic Copepods in the United States National Museum.
Diagnoses of New Barnacles from the Philippines and China Sea.
Description of a New Terrestrial Isopod from Panama.
A New Discodrilid Worm from Colorado.
Description of Two Parasitis Isopods from Panama.
A Revision of the Sub-species of the Green Heron.
Description of a New Species of Isopod from Ecuador.
Description of a New Family, etc., from Philippine Islands (Fishes).
Studies of Mexican and Central American Plants.
The Allioniacæ of Mexico and Central America.
A Monograph of the Forminifera of the North Pacific Ocean.
The Early Paleozoic Bryosoa of the Baltic Provinces.
Catalogue of Art Objects from the Freer Collection in United States National Museum.
New or Noteworthy Plants from Columbia and Central America.
The Gama-grasses, Bontelna and Related Genera.
Studies of Tropical American Ferns.
The North American Species of Nymphæa.
List of North American Land Mammals in the United States National Museum, 1911.
New Genera and Races of African Ungulates.
A Fossil Toothed Cetacean from California (New Species).
New Races of Insectivores, Bats and Lemurs from British East Africa.
New Mammals from the Highlands of Siberia.
Descriptions of the Alcyonaria collected mainly in Japanese Waters.
Preliminary Account of Medusæ from the Philippines.
Bryozoa from Labrador, etc., collected by Dr. Owen Bryant.
Notes on certain Amphipods from the Gulf of Mexico, with description.
The Crinoids of the Museum, Berlin.
Revision of the Forms of Great Blue Heron.
Proceedings of the United States National Museum, 1911.
" " " 1912.
Birds of North and Middle America, 1911.
Annual Report of the United States National Museum, 1911.

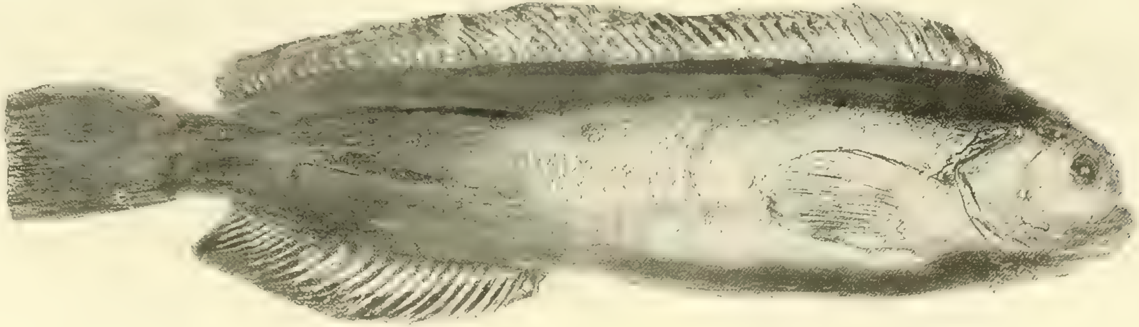
AMERICAN MUSEUM OF NATURAL HISTORY, NEW YORK.

A New Porpoise from Japan.
A Description of an Apparently New Porpoise, with Remarks upon Skull.
Mammals from Venezuela, collected by M. A. Carriker, 1909, 1911.
Mammals collected in the Dutch East Indies by Roy C. Andrews, 1909.
The Generic Name, Cercopithecus. Notes on North American Sheep.
Mammals from Western Columbia.
A New Pika from Colorado.
Scientific Results, Expedition Gulf of California (V. H. Townsend).
Diagnoses of apparently new Columbia Birds.
A New Ibis from Mt. Kenia, British East Africa.
A Revision of the Classification of Kingfishers.
Concealing Coloration, an Answer to Theodore Roosevelt.

THE CONDOR, A MAGAZINE OF WESTERN ORNITHOLOGY.

Another Fortnight on the Farallones.
The Shore Birds of Santa Barbara.
A Week Afield in Southern Arizona.
Some North-Central Colorado Bird Notes.
Birds of the Cottonwood Groves.
The Discovery of the Nest and Eggs of the California Pine Grosbeak.





BONITA (*Sarda chilensis*).
(Type Specimen.) PROW FISH (*Zaprora silenus*).

AGRICULTURAL EXPERIMENTAL STATION, OHIO.

Autumn Meeting of the Ohio State Horticultural Society.
Treatment of Artificial-tree Plantations.
Alfalfa in Ohio—a Field Study.
The Church Bug.
The Rural Population of Ohio (showing Increase and Decrease).
Varieties of Corn in Ohio.
Farm Poultry.
Co-operative Forestry Work.
Experiments on the Central Farm (Maintenance of Soil Fertility).
The Seed-corn Situation.
Testing the Dairy Cow.
Carriers of Lime.
Horticultural Information.
Apple-blister Canker, and Methods of Treatment.
Dressing for Pruning-wounds on Trees.
Farm Management, Field Studies, and Demonstration Work in Ohio.
Feeding Dairy Cows.
The Status of the Potato-growing Industry in Ohio.
Seasonal Notes on Potatoes.
Fall Manual of Practice in Aconomic Zoology.
Flour-mill Fumigation.
Climate of Ohio.
Strawberry Notes for 1910-11.
Tobacco-culture in Ohio.
Rejuvenation of Orchards.

UNITED STATES DEPARTMENT OF AGRICULTURE, WASHINGTON.

The Migratory Movements of Birds in relation to the Weather.
Our Mid-Pacific Bird Preservation.
Bird Enemies of the Codling-moth.
Craw-fish as Crop-destroyers.
National Reservation for the Protection of Wild Life.
Directory of Officials and Organizations *re* Birds and Game, 1912.
Report of the Condition of Elk in Jackson Hole, Wyoming, 1911.
Chronology and Index, Game Protection Act, 1776-1911.
Report of Expedition to Layson Island.
Annual Report of the Governor of Alaska on Alaska Game Law, 1911.
Common Mammals in Western Montana in relation to Agriculture.
The English Sparrow as a Pest.
Raising Belgian Hares and other Rabbits.
Some Common Game, Aquatic, and Rapacious Birds in relation to Man.
Farmers' Bulletin, 510.
Game Laws for 1912.

FIELD MUSEUM OF NATURIAL HISTORY.

Annual Report of the Director to the Board of Trustees.
Mammals from Western Venezuela and Eastern Columbia.
Description of New Fishes from Panama.
The Oraibi Maru Ceremony, 1912.
Brief Miscellaneous Hopi Papers, 1912.

WILSON ORNITHOLOGICAL CLUB, OBERLIN, OHIO

A Study of the Home Life of the Brown Thrasher.
March Bird List from the Callosahatches River and Lake Okeechobee.
A Preliminary List of Birds of Fall River County, South Dakota.

PENNSYLVANIA MUSEUM AND SCHOOL OF INDUSTRIAL ART.

The Frishmuth Antiquarian Collection.
Drawing-room Set of Furniture, Louis XVI. Period.
Two Additional Furniture Sections, opened to the Public, May 27th, 1912.
An Old Interior from the Austrian Tyrol.
General Ethnology Collection, E. W. Clark Collection.
One of the Oldest Babylonian Tablets in the World.
An Ancient Antiquary.

THE COLORADO AGRICULTURAL COLLEGE.

Bulletin, Colorado Climatology.
Deterioration of the Quality of Sugar-beets, due to Nitrates in the Soil.
The Ammonifying Efficiency of certain Colorado Soils.

THE DETROIT MUSEUM OF ART.

A Painting added to the Permanent Collection.
April Bulletin, Vol. 6.
Some Fine Acquisitions.

THE BRITISH MUSEUM OF NATURAL HISTORY

Guide to the Department of Zoology, 1910.
Guide to the Animals, etc., mentioned in the Bible.
Guide to Smith's Drawings of Mushrooms.
Memorials of Charles Darwin, 1910.
Guide to the Crustacea, etc., 1910.
General Guide to the British Museum of Natural History, 1909.
Guide to the Exhibited Series of Insects, 1909.
Guide to the Shell and Starfish Galleries, 1908.
Guide to the Great Game Animals (Ungulata), 1907.
Guide to the Coral Gallery, 1907.
Guide to the Gallery of Reptila and Amphibia, 1906.

THE CARNEGIE MUSEUM, PITTSBURG.

Report of the Carnegie Museum, 1911.
Report of the Founder's Day, and Annual Report, 1912.

MISCELLANEOUS REPORTS.

State Museum University of Washington, Seattle, 1912.
Wisconsin Natural History Society, 1911.
Report of the University Museum, Michigan, 1911.
The Louisiana Museum.
Bulletin No. 1, Leguminosae of Louisiana, 1910.
City of Milwaukee Public Museum.
Annual Reports of the Oakland Free Library and Oakland Museum, 1911-12.
The Oologist—Birds, Nests, Eggs, December, 1911.
The Mineral Resources of the Philippine Islands.
American Association of Museums.
New York Zoological Society, New Blood Pheasants.
Report of the Drexel Institute and Library School.
The Tahltan Indians, University of Pennsylvania.
Educational Appliances for the Instruction of Natural History.
University Studies of the University of Nebraska (4 reports).
University of California in Zoology, Vol. 8, No. 3.
Augustana Library, Rock Island, Ill., No. 7.
Report, Wagner Free Institute of Science, Philadelphia, 1911-12.
Report, Erie Public Library, Pa., 1909-10-11.
California University, Birds in relation to Grasshoppers.

California University, Structure and Relationships of D. palustris.
California University, Birds of Oregon, 1907-8.
Studies in Bird Migration.
Park Museum Bulletin, March and April, 1911.
Some Aspects of Variation, 1912.
Bristol Art Gallery Catalogue.
Wilson Bulletin, Ohio, No. 81.
Report of the Natural History Museum, Illinois, 1909-10.
American Journal of Science, Showers of Meteoric Stones, etc.
State Board of Agriculture, Mass., Report of State Ornithologist.
A Preliminary List of the Insects of Quebec.
Guide to the Collections, Free Public Museums, Liverpool.
Annual Report of the Public Museum of Milwaukee.
Some Poultry Diseases, Colorado Agricultural College.
Geology of the Sangamon County.
Report of the Brooklyn Entomological Society.
Report of the New Jersey Agricultural Experimental Stations.
Report of the Pennsylvania Museum and School of Art.
Report of the Museum of Natural History, University of Michigan.
General Guide to the Museum of Natural History, University of Michigan.
Report of the Brooklyn Museum of Arts and Sciences.
The Mineral Resources of the Philippines for 1911.

CANADIAN REPORTS.

Report of the Anthropological Division, Canada Department of Mines.
Summary Report of the Geological Survey, 1911-12.
Report of the Bighorn Coal Basin, Alberta.
Report of Southern Vancouver Island.
The Geology and Ore Deposits of Phœnix, Boundary District, B.C.
Preliminary Report of the Clay and Shale Deposits of Western Provinces.
Report of the Commission *re* Turtle Mt. and Frank, Alta.
The Geology of Steeprock Lake, Ont.

MANCHESTER MUSEUM, ENGLAND.

Report of the Manchester Museum for 1895 to 1912, inclusive.
Notes on Suggestions for a Proposed Museum in Manchester.
Notes on Rachiopteris cylindrica (Will.).
Notes on Ampullæ in some Specimens of Millepora.
Notes on New Species of Brachiopoda and Mollusca of Lancashire.
Notes on Palæontology of the Manx Slates of the Isle of Man.
Xenophyton radiculosium (Hick) and Stigiuarian Rootlet.
The Red-sandstone Rocks of Peel, Isle of Man.
The Carboniferous Perunan and Triassic Rocks in Glacial Drifts.
Report on Bigbury Camp and Pilgrim's Way.
Notes on the Type Specimen of Loligoeblanae (Ball).
Discovery of Elephas antiquois at Blackpool.
Diagnostic Key to Dibranchiate cephalopoda.
Two Native Rag-branches and a Prayer-stick.
The Education of a Curator.
Glue and Turpentine Cement for Alcoholic Mounts, how to make and use.
Nomenclature of the Seams of Lancashire Coal-measures.
Hadfield Collection of Shells from the Loyalty Islands.
Catalogue of the Library.
Index to the Systema Nature of Linnæous.
Correlation Tables of British Strata.
Palaeontology of the Lancashire Coal-measures (Part 1).
" " " (Part 2 and 3).
A Brief Account of the Cosuro Melvill Hebarium.

Chapters from the Evolution of Plants.
Catalogue of Hepaticæ.
Handy Guide to the Museum.
The Marine Molusca of Madras.
Marine Shells from Lively Island, Falklands, and other Parts.
General Guides to the Natural History Collections.
Descriptive Catalogue of the Embryological Models.
Catalogue of Egyptian Antiquities of the XII. and XVIII. Dynasties.
Outline classification of the animal kingdom.
The Tomb of Two Brothers.

VICTORIA, B.C.:
Printed by WILLIAM H. CULLIN, Printer to the King's Most Excellent Majesty.
1913.

PROVINCE OF BRITISH COLUMBIA

REPORT

OF THE

PROVINCIAL MUSEUM

OF

NATURAL HISTORY

FOR THE YEAR 1913

THE GOVERNMENT OF
THE PROVINCE OF BRITISH COLUMBIA.

PRINTED BY
AUTHORITY OF THE LEGISLATIVE ASSEMBLY.

228457

VICTORIA, B.C.:
Printed by William H. Cullin, Printer to the King's Most Excellent Majesty.
1914.

Glacier, south end of Atlin Lake, B.C.

PROVINCE OF BRITISH COLUMBIA

British Columbia Provincial

REPORT

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APR 20
National Museum

VICTORIA, B.C.:
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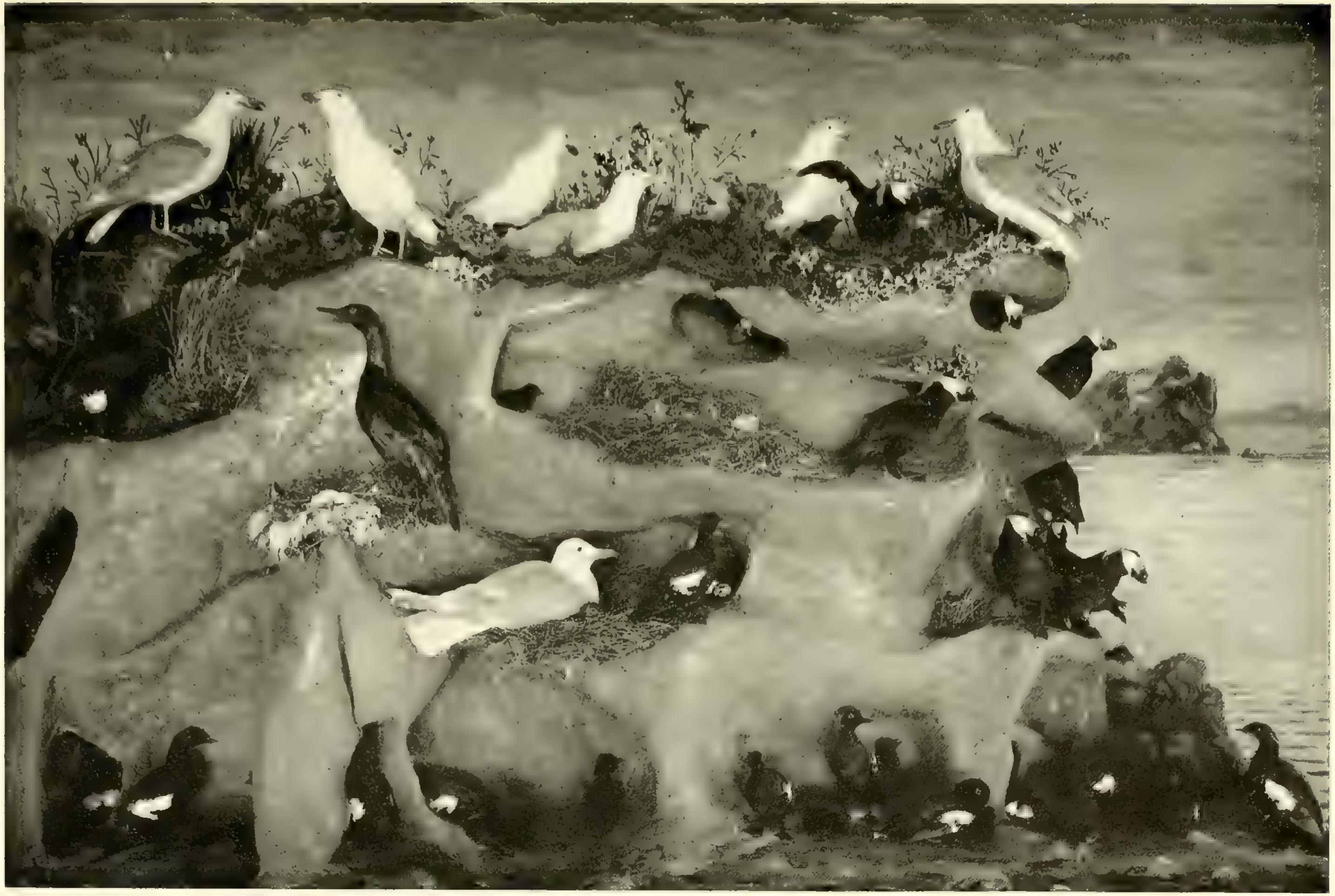


Group in the Provincial Museum, representing a section of Bare Island, Straits of Georgia, B.C.

The birds included are Tufted Puffins, Pigeon Guillemots, Glaucous-winged Gulls, and Violet-green Cormorants, that nest on Bare Island during the months of June and July. It is proposed to make this Island a Bird Sanctuary.

To His Honour THOMAS WILSON PATERSON,

Lieutenant-Governor of the Province of British Columbia.

MAY IT PLEASE YOUR HONOUR:

The undersigned respectfully submits herewith the Annual Report of the Provincial Museum of Natural History for the year 1913.

HENRY ESSON YOUNG,

Provincial Secretary.

Provincial Secretary's Office, January 15th, 1914.

Provincial Museum of Natural History,
Victoria, B.C., January 15th, 1914.

The Honourable H. E. Young, M.D.,
Provincial Secretary, Victoria, B.C.

Sir,—I have the honour, as Director of the Provincial Museum, to lay before you the report for the year 1913, covering the activities of the Museum.

I have the honour to be,
Sir,
Your obedient servant,

FRANCIS KERMODE,
Director.

ERRATA.

Page 5, line 25.—For "batrachins" read "batrachians."

Page 19.—For "Reptila" read "Reptilia."

Page 22, line 6.—For "Buffalo-head" read "Buffle-head."

Page 26, top line.—For "Kwakiult" read "Kwakiutl."

PROVINCIAL MUSEUM REPORT

FOR THE YEAR 1913.

Provincial Museum,
Victoria, B.C., December 31st, 1913.

The Honourable H. E. Young, M.D.,
Provincial Secretary, Victoria, B.C.

Sir,—The work of the Provincial Museum of Natural History during the past year has been more extensive in its scope, and, I believe, more productive in results which are calculated to advance and serve the purposes of popular instruction, than in any preceding year. It is gratifying to note that the earnest and persistent efforts made during the past years have won the generous and appreciative recognition not only of scientific men, but of the general public, and that our institution as a Museum of Provincial Natural History and Anthropology is recognized as one of the foremost of its kind.

There is no way of accurately recording the attendance, but a glance at the visitors' register shows the names of people from all parts of the world. Only a very small proportion of persons visiting the Museum utilize the register, 33,896 only having recorded during 1913. Several classes from the public schools under the direction of their teachers have visited the Museum, and I think that, if other teachers would take an opportunity of bringing their classes to visit the Museum, it would be of great benefit to the students in their nature-studies.

It has been the endeavour of the Director to make every dollar of expenditure tell in the direction of increasing the extent and value of the possessions of the Museum.

Considerable scientific research has been carried on in the field during the year, and the Director proposes to continue this work and have parties in the field each year until every portion of the Province has been covered; the country offering almost unlimited opportunities for the enthusiastic collector.

On April 7th, E. M. Anderson, of the Museum staff, accompanied by an assistant, C. B. Garrett, were sent afield to make a general collection of zoological specimens in the Okanagan Valley from the south end of Okanagan Lake to the United States boundary. Many valuable specimens were added to the Museum, several species being new to the collection. During the three months' trip there were collected: 306 birds, 580 oological specimens (comprising 114 sets of eggs with nests), 278 mammals, 36 batrachins and reptiles, 11 fishes, and over 4,000 entomological specimens.

Special attention was given during the year to our collection of fishes. An interesting and beautiful series of casts has now been arranged in eight cases on the upper floor in the north section of the Museum. These casts, carefully coloured, represent the salmon family in both salt-water and spawning forms, and other fishes indigenous to the waters of the Province. In addition to the above, many new specimens have been preserved in alcohol, and the whole collection of fishes rearranged.

During the months of May and June the Director, accompanied by an official of the Provincial Secretary's Department, made several week-end trips to Bare and Saturna Islands, and secured some very interesting material.

The Director has this year taken up with more activity the question of the preservation of wild life, and having the permission of the Honourable H. E. Young, M.D., Provincial Secretary and Minister of the Department, invited the Royal Commission on Indian Affairs for the Province of British Columbia to visit Bare Island, an Indian reserve, which has been proposed as a bird sanctuary. The invitation was accepted, the launch "Gunhild" chartered, and the trip taken on July 4th. The Commission was greatly impressed with what they saw of the bird-life on this island, and negotiations are now in progress with the Department of Indian Affairs at Ottawa to have Bare Island made a permanent bird sanctuary for the preservation of wild life.

Dr. C. F. Newcombe has continued his work of collecting anthropological material and data relating to the Coast tribes, and has secured a large number of rare and valuable specimens, one of which is a large board sail, which I believe is the first that has been secured by any museum. Dr. Newcombe's report is annexed hereto.

Mr. J. A. Teit, of Spences Bridge, has also continued the work of collecting anthropological material from the Interior tribes, and has been very successful in securing a great deal of wearing-apparel, baskets, etc.

Dr. Newcombe having been employed by the Fisheries Department to carry on investigations regarding the life-history of sea-lions, the Director left Victoria on June 17th for Namu, to accompany him to the rookeries in the Sea Otter Group, south-west of Cape Calvert. On arriving at Namu on the 20th, the launch "Chaos" was chartered and left the same evening for Cape Calvert. On the way down Fitzhugh Sound, about 9.30 p.m., when nearing Safety Cove, the "Karluk" on her way north, with the Steffanson Arctic Expedition on board, was passed. Early next morning a start was made round Sorrow Island and Cape Calvert, out to sea in a south-westerly direction to Devil and Pearl Rocks, which are about seven miles off-shore. On approaching Devil Rock only a few sea-lions were found, probably about 200, but at the next point visited, Pearl Rocks, which is the main rookery, the number estimated was 1,500 males and females and about 500 pups. In an endeavour to secure specimens several shots were fired, but when hit the animals would roll off the rocks into the sea and sink almost immediately. One large male, however, was secured before it sank, and was towed back to Grief Bay, a distance of seven miles, where it was hauled up as the tide came in, to be skinned and prepared for transportation. This mammal measured 11 feet 6 inches in length and 8 feet 6 inches around the neck, and weighed about 2,500 ℔. Several good photographs were secured, showing the rocks inhabited by these large sea-mammals. Early the next morning Pearl Rocks were revisited, and subsequently Watch Rock, where approximately 500 males and females, including pups, were observed. Bird Rock, which is nearer the shore-line of Calvert Island, was also visited. This is a small island, chiefly rock, where a number of glacous-wing gulls and cormorants nest, and should be set aside as a bird sanctuary; the birds on this island are not found in any such numbers as on Bare Island, near Victoria.

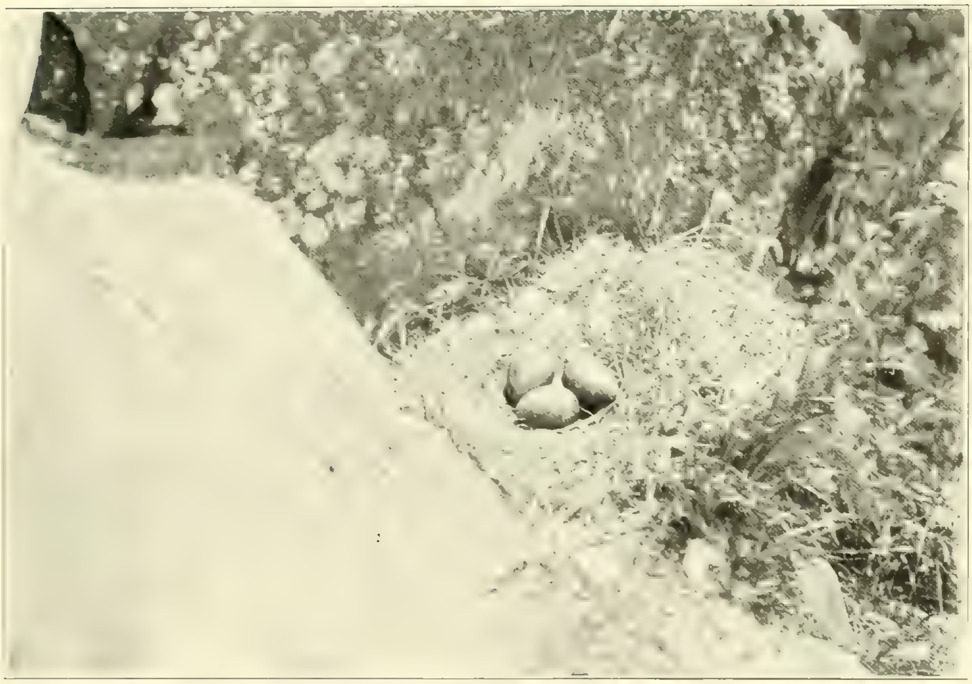
On August 30th the Director and his assistant left Victoria for Atlin on a general zoological collecting trip. Although in the Atlin country only during the month of September, a considerable number of specimens were collected, several of which were not previously known to be in the Province. When it becomes possible to again visit this district and do a full season's field-work, there can be no doubt that a number of eastern and northern species will be found within the limits of British Columbia.

In a Province possessing such an enormous coast-line, the study of marine biology is of very great importance, but so far our efforts in this direction have been handicapped by the lack of suitable means for carrying out the work. Systematic dredging along the coast must be undertaken by means of a suitable vessel. It is generally to be hoped that in the near future it will be found possible to obtain a launch for the use of the Department, in order that this important branch of our institution may not be neglected. A suitable boat would be of very great assistance also in obtaining data relating to the migration of sea-birds and the nesting habits, and would afford an opportunity of visiting certain little-known islands which contain material of the greatest value and interest to the Provincial Museum.

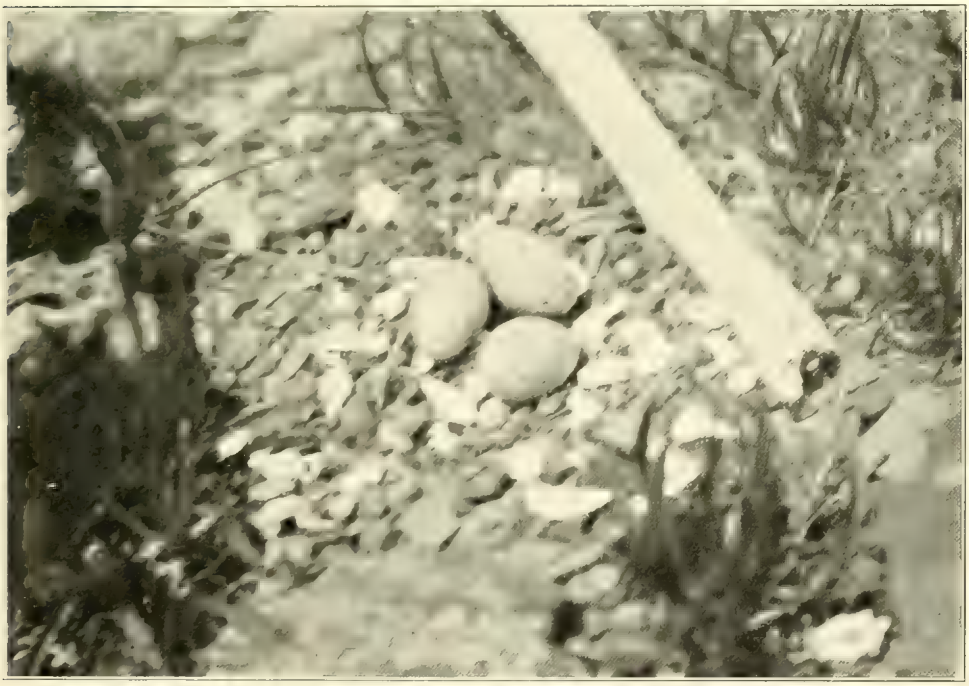
Annexed will be found a complete list of all new specimens secured during the year.

I have the honour to be,
Sir,
Your obedient servant,

FRANCIS KERMODE,
Director.



Nest and eggs of the Glaucous-winged Gull. Bare Island, near Victoria, B.C.



Nest and Eggs of Black Oyster-catcher, Bare Island, near Victoria, B.C.

REPORT ON BIRDS COLLECTED AND OBSERVED DURING APRIL, MAY, AND JUNE, 1913, IN THE OKANAGAN VALLEY, FROM OKANAGAN LANDING SOUTH TO OSOYOOS LAKE.

By E. M. Anderson.

(Note.—Species collected on the trip are marked with an asterisk.)

*Holbœll's Grebe (*Colymbus holbœlli*, Reinh.).

Common on all the lakes throughout the valley; breeds on Dog, Vaseaux, and Osoyoos Lakes. Eggs taken on June 11th and 16th. Nests found floating in the tule marshes and also on the margin of lakes, composed of dead rushes, grasses, etc., and lined with decayed vegetation—in about 3 feet of water. Eggs, four or five whitish buff to pale green, often stained to obscure the ground colour; size, 2.20 x 1.45.

*Horned Grebe (*Colymbus auritus*, Linn.).

Fairly common on lakes. Nests found well hidden amongst tules in about 4 feet of water. Three sets of eggs taken June 13th at Vaseaux Lake. Nest composed of rushes, etc., and lined with decayed vegetation. From five to eight buffy white eggs, often pale greenish; size, 1.50 x 1.25. Birds seldom found near the nests, as the eggs are incubated chiefly by the action of dead vegetation placed in the nests.

Loon, Great Northern Diver (*Gavia immer*, Brun.).

A pair were found on all the larger lakes throughout the valley. On May 23rd, secured an interesting set of eggs at Vaseaux Lake; the nest was situated at the water's edge, on the extreme point of a small island. Eggs two in number, of a dark greenish-brown colour, spotted sparingly with black. One egg measured 2.20 x 3.15, the larger 4.40 x 2.50; the latter a most remarkable-sized egg.

Herring-gull (*Larus argentatus*, Pont.).

One seen at Okanagan Lake on April 9th.

Merganser (*Mergus americanus*, Cassin.).

One pair seen at Okanagan Lake on April 12th; probably breeds.

Mallard (*Anas platyrhynchos*, Linn.).

On April 10th a large flock of about sixty birds was seen near Penticton, along the Okanagan River. By the 20th of the month nearly all of the birds paired and bred on the numerous lakes throughout the district.

Red-head, Pochard (*Marila americana*, Eyt.).

A few pair were seen with a large flock of scaup-ducks at Okanagan Landing on April 15th. A pair bred on Dog Lake, near the Okanagan Falls. The young were seen on June 12th close to the margin of the lake.

Scaup-duck, Bluebill (*Marila marila*, Linn.).

Common at Okanagan Falls on April 9th. Did not find it breeding in the valley.

Lesser Scaup-duck (*Marila affinis*, Eyt.)

Five birds seen in company with scaup-ducks on April 9th at Okanagan Landing.

Buffle-head, Butter-ball (*Charitonetta albeola*, Linn.).

Two males seen at Okanagan Lake on April 9th.

Canada Goose (*Branta canadensis canadensis*, Linn.).

Found throughout the valley. Three were seen at Penticton on April 12th; about forty at Vaseaux Lake on May 12th. Breeds throughout the valley. On an island in Vaseaux Lake two nests were found on the ground. They lay five beautiful eggs; size, 3.45 x 2.40. Nests composed of pin-needles, lined with down. Birds have been known to nest at the edge of American osprey's nest, and not uncommonly on top of a pinnacle of a mountain-top.

TRUMPETER-SWAN (*Olor buccinator*, Rich.).

Two birds were seen at Dog Lake, near Kaleden. These birds were moving northward to their breeding-grounds. S. Satow reports the bird common at Vaseaux Lake during the winter months.

BITTERN (*Botaurus lentiginosus*, Montag.).

By no means a common bird; only three pair seen. A pair was found breeding at Vaseaux Lake on June 8th; nest in the marsh. Two birds seen at Osoyoos Lake on May 10th, and also a pair observed on wing along the Okanagan River on June 25th.

SANDHILL-CRANE (*Grus mexicana*, Muller).

Two flights of about one hundred birds moving northward seen on Schoonover Mountain, April 18th to 20th. One pair breeding at Vaseaux Lake, May 23rd.

VIRGINIA RAIL (*Rallus virginianus*, Linn.).

Found on Dog Lake, Okanagan Falls, May 2nd, breeding in reeds.

CAROLINA RAIL (*Porzana carolina*, Linn.).

One pair seen at Vaseaux Lake, May 23rd, breeding in tules.

COOT (Mud-hen), (*Fulica americana*, Gmel.).

Common at Okanagan Lake, Penticton, April 10th to 15th. Breeds on lakes throughout the valley. Eggs laid in marshes.

WILSON'S SNIPE (*Gallinago delicata*, Ord.).

One pair observed on May 10th at Dog Lake, Okanagan Falls.

*GREATER YELLOW-LEGS (*Totanus melanoleucus*, Gmel.).

A fine male taken on a small lake near Fairview on May 15th.

*SPOTTED SANDPIPER (*Actitis macularia*, Linn.).

Common, breeds throughout the valley. Seen at Vaseaux Lake on May 20th, Dog Lake on June 15th; two birds shot at Penticton along the river-bank on June 25th. This is the only species of sandpiper observed with certainty in the valley.

LONG-BILLED CURLEW (*Numenius americanus*, Bech.).

Not common. On May 8th a pair were seen on a side-hill on Shuttleworth Creek. A pair bred at Vaseaux Lake on the west side. Birds heard, May 25th to 30th; nest not found.

*KILDEER PLOVER (*Oxyechus vociferus*, Linn.).

Fairly common in suitable breeding-places. Taken on May 10th at Okanagan Falls. Seen at Vaseaux Lake on June 1st,/at Dog Lake on June 20th.

CALIFORNIA QUAIL (*Lophortyx californica californica*, Shaw.).

Saw two pair at Penticton with young brood on June 28th. Settlers report the bird increasing throughout the district.

*RICHARDSON'S GROUSE (*Dendragapus obscurus richardsoni*, Dougl.).

Common in nearly all the foot-hills. Secured birds at Penticton on April 10th; Okanagan Falls, Schoonover Mountain (4,000 feet), April 18th to 25th. Found nest containing six eggs near the top of Schoonover Mountain, about 4,500 feet; nest on ground under small pine-tree. Eggs hard set on June 2nd; size, 1.90 x 1.30; buff coloured, spotted with brown.

FRANKLIN'S GROUSE (*Canachites franklini*, Dougl.).

Two birds were seen on April 9th at Four-mile Creek, Penticton, at an altitude of about 3,000 feet. These birds breed on Mount Pearson and most of the high mountains throughout the valley. R. D. Sullivan reports it breeding back of Summerland at about 4,000 feet.

*GREY RUFFED GROUSE (*Bonasa umbellus umbelloides*, Dougl.).

Abundant in different sections. Common along the river-banks and alder bottoms; also found in mountains in suitable places, along creeks, edges of lakes, etc. Secured several fine specimens during May. Found a nest on May 3rd placed on the ground, composed of dead leaves. The five eggs measure 1.60 x 1.20, pale-buff colour. Eggs fresh when taken.

Bird-nesting on Saturna Island.

The eggs of the North-west Coast Heron were taken from the nest near the top of this large fir.

Ring-neck Pheasant (*Phasianus torquatus*, Linn.).

A few were seen at Okanagan Falls. J. Thomas reports the birds doing well, and it is to be hoped that they will endure the winter months.

*Mourning-dove (*Zenaidura macroura carolinensis*, Linn.).

Very abundant from Penticton to Osoyoos Lake. Observed on May 24th at Vaseaux Lake, May 16th at Osoyoos, and all through June at Okanagan Falls. Breeds throughout the valley commonly; nest usually placed on the ground, laying two white eggs; size, 1.15 x 0.80.

Turkey-vulture (*Cathartes aura septentrionalis*, Wied.).

Very common from Vaseaux Lake to Osoyoos; breeds in rugged cliffs from May to July.

Marsh-hawk (*Circus hudsonius*, Linn.).

Saw one bird at Osoyoos Lake on May 16th. One pair were found breeding at Vaseaux Lake on June 10th amongst the tule marshes and grasses.

*Sharp-shinned Hawk (*Accipiter velox*, Wils.).

One specimen taken near Fairview on May 19th. Not a common breeder in the district.

*Cooper's Hawk (*Accipiter cooperi*, Bonap.).

Found a pair breeding at Shuttleworth Creek, Okanagan Falls, on May 3rd. Nest composed of sticks and lined with bark strips, etc., was placed in poplar tree, about 30 feet up. The eggs, two in number, of a bluish-white colour, spotted slightly with brown; size, 1.90 x 1.40. Eggs fresh.

Goshawk (*Astur atricapillis atricapillus*, Wils.).

One pair seen at Shuttleworth Creek, Okanagan Falls, on April 18th.

Western Red-tailed Hawk (*Buteo borealis calurus*, Cass.).

Not common. Saw one bird at Okanagan Falls on May 25th, and another pair at Schoonover Cabin, 3,500 feet altitude.

Swainson's Hawk (*Buteo swainsoni*, Bonap.).

Only one specimen seen at Shuttleworth Creek, Okanagan Falls, on May 20th.

Golden Eagle (*Aquila chrysætos*, Linn.).

Not common. One pair found breeding at MacIntyre Creek, nest inaccessible on rugged cliff, May 10th.

Bald Eagle (*Haliaëtus leucocephalus alascanus*, Towns.).

One pair seen on May 5th at Okanagan Falls.

*Duck-hawk (*Falco peregrinus anatum*, Bonap.).

On May 12th found a pair breeding on the south side of Peach Cliff, Okanagan Falls; nest situated in a crevice of an inaccessible bluff, about 500 feet from the ground. Secured both male and female in full breeding plumage.

Black Pigeon-hawk (*Falco columbarius suckleyi*, Ridg.).

Not a common bird. Observed one at Okanagan Falls on May 8th, and one at Vaseaux Lake on June 1st.

*Desert Sparrow-hawk (*Falco sparverius phalæna*, Lesson).

Common. Breeds throughout the valley; nests in holes in trees. Okanagan Falls, May 8th; Osoyoos, May 16th; Penticton, June 26th.

*Osprey (Fish-hawk), (*Pandion haliætus carolinensis*, Gmel.).

Abundant. Penticton, May 12th; Okanagan Falls, April, May, and June. Breeds commonly; nests tops of trees from 50 to 80 feet high. Three sets of eggs taken. Okanagan Falls, set of three, May 12th; Osoyoos Lake, set of two, May 15th; and Vaseaux Lake, set of three, May 20th. Size of eggs, 2.55 x 1.95, whitish, blotched with chestnut brown.

*Long-eared Owl (*Asio wilsonianus*, Less.).

Breeds fairly commonly in old crows' nests in bottom lands. Male and female and five downy young taken on small island in Vaseaux Lake on May 23rd.

DUSKY HORNED OWL (*Bubo virginianus saturatus*, Ridg.).

One seen on April 12th at Four-mile Creek, near Penticton, and another at Okanagan Falls on May 3rd. Breeds throughout the district.

BELTED KINGFISHER (*Ceryle alcyon*, Linn.).

Found breeding along the river-banks and Vaseaux Lake. Nest contained seven young on June 24th, in a hole in the bank at Penticton. Fairly common.

*NORTHERN HAIRY WOODPECKER (*Dryobates villosus leucomelas*, Bodd.).

One female taken at Shuttleworth Creek, Okanagan Falls, on May 7th. Not common.

*CABINIS' WOODPECKER (*Dryobates villosus hyloscopus*, Cab. & Heine).

Fairly common in the hills. Four specimens taken at Schoonover Mountain, Okanagan Falls—one April 19th, one April 25th, one May 7th, and another June 7th.

*BATCHELDER'S WOODPECKER (*Dryobates pubescens homorus*, Cab. & Heine).

Fairly common. Taken at Okanagan Falls on May 13th.

*RED-NAPED SAPSUCKER (*Sphyrapicus varius nuchalis*, Baird.).

Four specimens taken at Penticton on June 25th. Not common. Breeds near Penticton, along the Okanagan River banks; nests in alder-stumps. Birds located feeding young, June 22nd.

*WILLIAMSON'S SAPSUCKER (*Sphyrapicus thyroideus*, Cass.).

Rare in British Columbia. Male and female taken on April 22nd on Schoonover Mountain, Okanagan Falls, about 3,500 feet, and a single male on June 1st in the same locality. The hammering of this bird differs in sound from any other of the woodpecker family, being faster and shriller, not unlike that of a nuthatch, but heavier taps and more pronounced. All three were found feeding on tamarack-trees.

NORTHERN PILEATED WOODPECKER (*Phlœotomus pileatus abieticola*, Bangs).

Not common. Breeds at Okanagan Falls. Pair seen at McLean Creek on May 1st.

*LEWIS' WOODPECKER (*Asyndesmus lewisi*, Riley).

Common from Okanagan Falls to Osoyoos. Breeds commonly. Nests in holes in stumps, etc., laying from seven to nine eggs, white, measuring 1.05 x 0.80. Eggs taken at Vaseaux Lake on May 31st and June 10th.

*RED-SHAFTED FLICKER (*Colaptes cafer collaris*, Vigors).

Common throughout the valley. Breeds commonly. Nests in old stumps, etc., from 10 to 20 feet high. Birds and eggs taken at Vaseaux Lake on May 27th and June 10th. Lay from six to eight white eggs, measuring 1.20 x 0.90. The male bird was sitting on the eggs. Bird shot.

POOR WILL (*Phalænoptilus nuttalli nuttalli*, Aud.).

Only one seen at Vaseaux Lake on June 5th. Heard notes of the bird at Penticton on June 26th.

*WESTERN NIGHT-HAWK (*Chordeiles virginianus henryi*, Cass.).

Very abundant at Okanagan Falls on June 29th, and also at Penticton from June 25th to July 1st.

BLACK SWIFT (*Cypseloides niger borealis*, Kenn.).

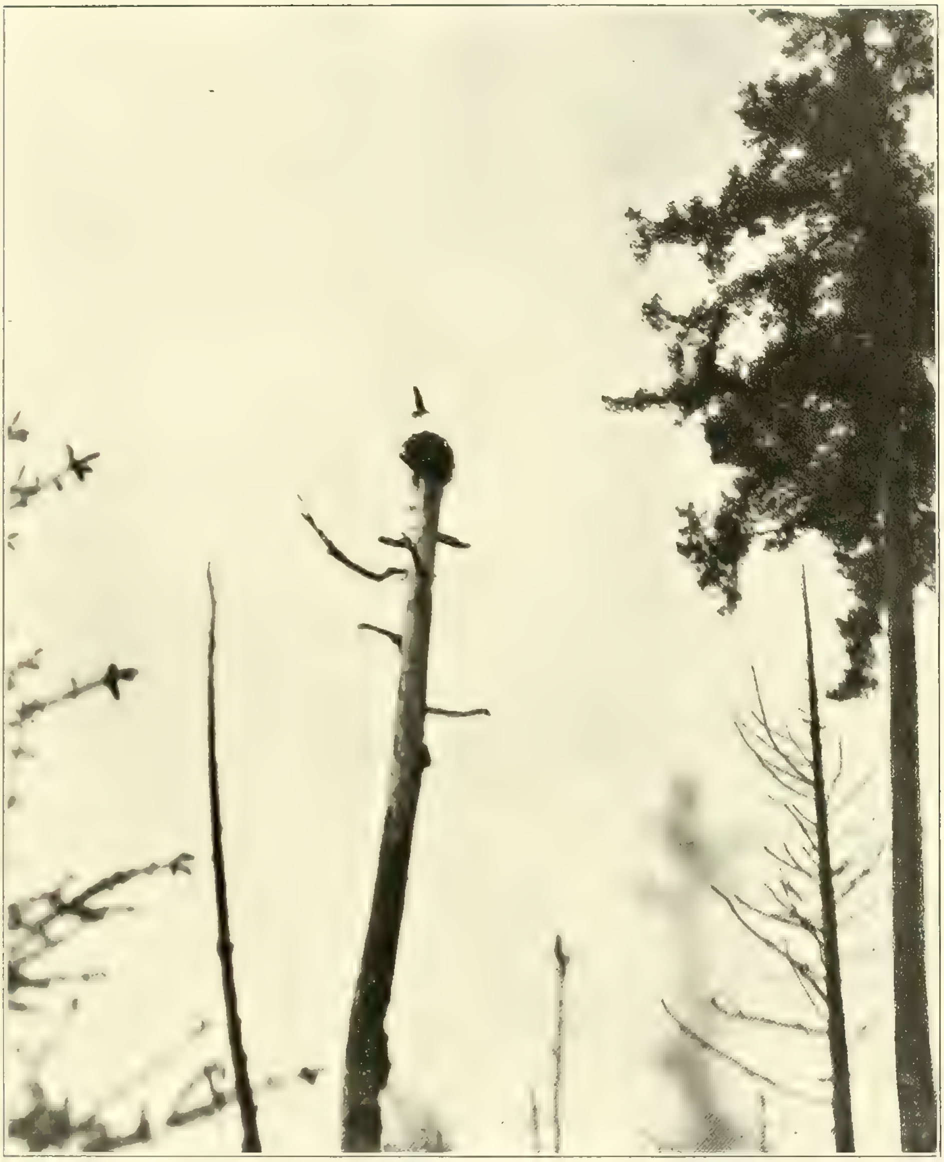
On July 2nd, while travelling on the train, observed a flock of about thirty birds on the wing a mile north of Mara.

VAUX'S SWIFT (*Chœture vauxi*, Towns.).

Fairly common at Okanagan Falls on May 20th; also a pair on Okanagan River, about two miles north of Penticton, June 26th; the latter pair were breeding. Observed the birds breaking rotten sticks from a dead birch whilst on the wing. This performance was noticed only late in the evening, usually about an hour before dusk.

CALLIOPE HUMMING-BIRD (*Stellula calliope*, Gould).

One male seen at Shuttleworth Creek on May 15th at an altitude of about 3,000 feet.



Osprey and nest at top of a dead fir, Saturna Island, Straits of Georgia, B.C.

*Rufous Humming-bird (*Selasphorus rufus*, Gmel.).

By no means as common as on the Coast. A few seen at Okanagan Falls from May 3rd to 30th, and at Penticton from June 20th to 30th.

*Kingbird (*Tyrannus tyrannus*, Linn.).

One of the commonest birds of the valley, arriving about the middle of May and breeding in June. Nests and eggs taken at Vaseaux Lake, June 11th and 15th; Penticton, June 20th, 25th, and 28th. Nests in bushes and tops of posts, etc. Lay from three to four cream-coloured eggs, blotched and spotted with brown and lilac, measuring 0.95 x 0.75.

*Arkansas Kingbird (*Tyrannus verticalis*, Say).

Very abundant in the valley. Breeds commonly. Found nest in stable containing three young on May 3rd at Okanagan Falls, and a second nest with fledglings on June 11th at Shuttleworth Creek in a pine-tree close to the trunk, about 30 feet high.

*Say's Phœbe (*Sayornis sayus*, Bonap.).

Two specimens taken in sage-brush at Penticton on April 10th, and another at Okanagan Falls on May 5th. Breeds.

*Olive-sided Flycatcher (*Nuttallornis borealis*, Swains.).

One seen at MacLean Creek on May 8th. A male taken at Schoonover Mountain on June 6th, altitude 3,500 feet. By no means a common bird.

*Western Wood-pewee (*Myiochanes richardsoni richardsoni*, Swains.).

Fairly common at Osoyoos, May 16th; Vaseaux Lake, May 24th; and Penticton, June 25th. Breeds.

*Traill's Flycatcher (*Empidonax trailli trailli*, Aud.).

Common. Nests and eggs taken at Penticton on June 16th. Nests placed in rose-bushes about 4 feet from the ground, composed of fine grasses and wood-fibre, lined with cow and horse hair. Lay from three to four eggs, cream coloured, spotted and blotched with lilac and brown, mostly towards the larger end. Measure, 0.75 x 0.55. (Eggs perfectly fresh.)

*Hammond's Flycatcher (*Empidonax hammondi*, Xan.).

Fairly common at Okanagan Falls. Taken May 4th, 15th, and June 4th at Schoonover Mountain, elevation 4,000 feet.

*Wright's Flycatcher (*Empidonax wrighti*, Baird.).

Not a common bird at Okanagan Falls on May 5th.

*Magpie (*Pica pica hudsonia*, Sab.).

Common Very abundant from Vaseaux Lake to Osoyoos. Breeds in large colonies at Incameep. Nest is a large structure of sticks usually placed in pine-trees from 15 to 40 feet high, often in willows, etc. Lay from seven to twelve eggs, averaging 1.25 x 0.90. Eggs taken on May 15th at Incameep, one set containing nine and the other seven. Nest is very bulky.

*Black-headed Jay (*Cyanocitta stelleri annectens*, Baird.).

Common throughout the valley. Breeds. Nests and eggs taken on May 2nd at Okanagan Falls. Nest was placed in jack-pine about 25 feet high, near the top. Composed of sticks and lined with wood-fibres, etc.

*Rocky Mountain Jay (*Perisoreus canadensis capitalis*, Ridg.).

Found this fine jay fairly common near the top of Schoonover Mountain at an altitude of from 3,000 to 5,000 feet, in the thick tamarack and spruce belts. The birds are very shy and silent during the nesting season. Several specimens were taken on April 20th and three on June 1st. No birds were seen below 3,000 feet.

*Western Crow (*Corvus brachryhynchos hesperis*, Ridg.).

Very abundant throughout the valley. Nests and eggs taken at Okanagan Falls from April 30th to May 19th. The birds were found breeding in numbers during May along the river-bottoms, from Penticton to Osoyoos. The nests were usually placed from 15 to 30 feet high in alder, poplar, and willow trees. Eggs averaged about five in number, varying from black to greenish white, spotted and blotched with various shades of brown; size, 1.60 x 1.15.

These birds do considerable damage to the smaller birds' nests. On several occasions they were found plundering the homes and destroying the eggs of the goldfinch and western chipping-sparrow, which are usually found common in the peach and apple orchards throughout the valley.

*Clarke's Nutcracker (*Nucifraga columbiana*, Wils.).

The bird found common in the foot-hills from Penticton to Osoyoos Lake, more abundant on the east side. Birds were taken at Penticton (Four-mile Creek) on April 10th, and at Schoonover Mountain, 4,000 feet altitude, on April 20th. Birds have been known to breed in the latter part of February, when the thermometer often registers 20 degrees below zero. From the size of the young birds taken in June, it is without doubt that the birds lay some time about the middle of March. Search for the nests was made daily from April 20th to 25th on Schoonover Mountain, 4,000 feet altitude; only one deserted nest was located in a pine-tree 25 feet from the ground. The nest is a large bulky affair composed of sticks and lined with bark, etc.

*Bobolink (*Dolichonyx oryzivorus*, Linn.).

Fairly common. Ten specimens taken at Penticton on June 20th. Located a female building a nest on the ground in the meadow near Penticton on June 18th, and on my return a few days later found the nest deserted. A pair was seen at Okanagan Falls on May 20th.

*Cowbird (*Molothrus ater ater*, Bodd.)

Birds taken at Penticton on June 25th. Flock of about seven were seen at Okanagan Falls on May 21st. On June 25th a single egg was found in the nest of a Pacific yellow-throat, which contained two eggs, slightly incubated.

*San Diego Redwing (*Agelaius phœniceus neutralis*, Ridg.).

Very abundant in marshes and swamps throughout the valley. Seen only in the bottom lands. Specimens were taken at Penticton, April 12th; Okanagan Falls, April 15th and May 10th; and Vaseaux Lake and Osoyoos in May. Nests and eggs were taken at Dog Lake on May 21st, also several fine sets at Vaseaux and Osoyoos on May 24th.

*Western Meadow-lark (*Sturnella neglecta*, Aud.).

Common at Penticton and Okanagan Falls; abundant nearly everywhere, in the fields and meadows throughout the valley. Breeds.

*Bullock's Oriole (*Icterus bullocki*, Swains.).

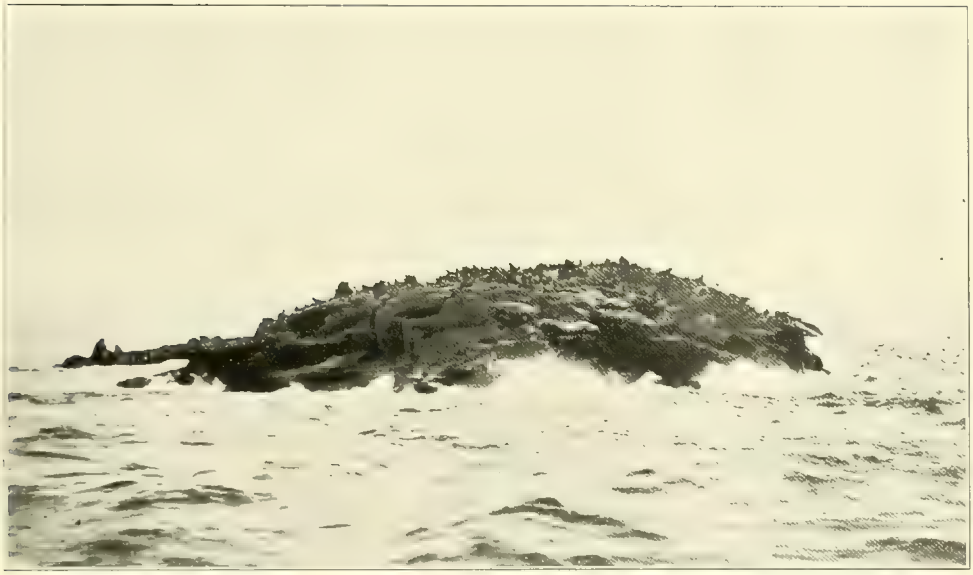
Abundant throughout the valley. Birds taken on May 27th at Penticton, and on June 6th at Vaseaux Lake. Breeds commonly close to water. Nests placed usually in deciduous trees, resembling a hanging basket in shape. Fresh eggs were taken at Penticton on June 15th. Eggs four in number, pale bluish white, streaked and lined with black, brown, and grey; size, 0.95 x 0.60. Nest containing four young was found at Dog Lake on June 20th. The chatter of these birds can be heard from morn till night; and they are very busy during the nesting season.

*Brewer's Blackbird (*Euphagus cyanocephalus*, Wag.).

One of the commonest birds in the valley. Large flocks were seen at Penticton on April 12th, and also at Okanagan Falls during the months of May and June. On May 29th a nest containing six eggs was taken. Eggs were slightly incubated. The nest was situated on a haystack in an open meadow—rather an unusual nesting-place. Another fine set was collected at Okanagan Falls on June 15th. Nest was placed on the ground and contained six dull greyish eggs, blotched and spotted with brown and black; size, 1 x 0.75. Incubation fresh.

*Western Evening Grosbeak (*Hesperiphona vespertina montana*, Ridg.).

During the first week in June a flock of about twenty birds frequented our camp at Schoonover Mountain (3,500 feet). The birds were watched closely in order to try and locate their nesting-place, but our observations proved in vain. The birds showed no signs of pairing up to June 15th. Several birds were collected on June 12th, and on close examination of the ovaries three females showed no sign of breeding whatever; therefore it is without doubt that these birds lay well on into July. Mr. Blurton mentioned the fact that he once saw a female feeding young birds near Mara during the latter part of July. From observations, it is believed that the birds nest near the tops of tall conifers, 100 to 150 feet high, otherwise an old nest would have been found.



Sea-lions on Pearl Rocks, south-west of Cape Calvert, Queen Charlotte Sound, B.C.

Large Sea-lion killed on Pearl Rocks and towed to Grief Bay, back of Sorrow Island.

*Cassin's Purple Finch (*Carpodacus cassini*, Baird).

Common at Okanagan Falls in April and May. A dozen specimens were collected in May at McLean Creek, Okanagan Falls. This bird is one of the finest songsters in the valley during the spring months. Its sweet melodious trills can be heard amongst the trees of the beautiful conifer forests characteristic of the Okanagan.

*Crossbill (*Loxia curvirostra minor*, Brehm).

Two flocks, about forty birds, were seen at Schoonover Mountain (4,000 feet) from June 2nd to 4th. Three males and one female taken on June 2nd.

*Pale Goldfinch (*Astragalinus tristis pallidus*, Mearns).

One male taken at Penticton April 12th; a small flock of seven observed at Okanagan Falls, April 30th; four seen at Penticton, June 14th. Breeds in July.

*Pine Siskin (*Spinus pinus*, Wils.).

Four birds collected at Okanagan Falls, April 12th; one flock of about thirty at Schoonover Mountain, April 20th.

*Snow-bunting (*Plectrophenax nivalis nivalis*, Linn.).

One specimen found dead at Okanagan Falls, May 1st. No other birds seen during the summer.

*Western Savannah Sparrow (*Passerculus sandwichensis alaudinus*, Bon.).

Common throughout the Valley. Taken at Okanagan Falls, April 20th to May 10th.

*Western Lark Sparrow (*Chondestes grammacus strigatus*, Swains.).

Fairly common at Osoyoos, May 16th. Taken at Vaseaux Lake, May 27th. A fine songster.

*Gambel's Sparrow (*Zonotrichia leucophrys gambeli*, Nutt.).

Fairly common. Okanagan Falls, May 6th; Osoyoos, May 22nd.

*Western Chipping-sparrow (*Spizella passerina arizonæ*, Coues).

Common everywhere throughout the valley. Eggs taken, May 30th, June 14th, June 21st and 25th. Nests placed in trees and bushes. Eggs four or five in number, of a greyish blue, spotted and blotched with blackish and purplish markings; size, 0.70 x 0.52.

*Shufeldt's Junco (*Junco hyemalis connectens*, Coues).

Found this bird common on all the foot-hills and higher altitudes throughout the valley. Taken at Penticton, April 10th to 12th; at Okanagan Falls, April 20th and May 10th.

*Rusty Song-sparrow (*Melospiza melodia morphna*, Oberh.).

Common everywhere in the valley. Eggs taken at Vaseaux Lake, May 23rd; at Okanagan Falls, June 11th and 13th. Nests placed in swamp-grass; four or five eggs in number, whitish or greenish white, spotted and blotched with browns of various shades; size, 0.80 x 0.60.

*Spurred Towhee (*Pipilo maculatus montanus*, Swarth).

Abundant throughout the valley. Breeds commonly; nests on the ground. Taken at Okanagan Falls, May 20th; Penticton, June 25th.

*Lazuli Bunting (*Passerina amœna*, Say).

Common in the lower sections of the valley. Birds taken at Vaseaux Lake, May 18th to 27th, June 10th; at Penticton, June 28th. Nests and eggs collected at Vaseaux Lake, May 29th. The nest was placed in small bushes about 4 feet from the ground. The eggs, four in number, were pale bluish white; size, 0.75 x 0.55.

*Western Tanager (*Piranga ludoviciana*, Wils.).

Fairly common at Okanagan Falls. Birds collected at Schoonover Mountain, June 1st; at Okanagan Falls, May 8th.

*Cliff Swallow (*Petrochelidon lunifrons lunifrons*, Say).

Common everywhere in the valley. Breeds commonly in suitable places. Nest constructed of mud, placed on dwellings or cliffs. Eggs four or five in number, whitish, spotted with reddish brown; size, 0.82 x 0.56. Taken at Okanagan Falls, April 30th; Vaseaux Lake, May 16th; Penticton, June 16th.

*BARN-SWALLOW (*Hirundo erythrogastra*, Bod.).

Fairly common at Okanagan Falls and Osoyoos. Nests and eggs taken at Dog Lake, June 19th. Nests in buildings and barns, etc. Eggs four or five in number, slightly paler in markings than the cliff-swallow.

*TREE-SWALLOW (*Iridoprocne bicolor*, Vieill.).

Only a few birds seen at Okanagan Falls on May 10th. Found it the most uncommon of all the swallows. Bird, nest, and eggs taken at Penticton, June 29th. Tho nest was situated in a hole in a fence-post about 4 feet from the ground. Nest contained three white eggs (hard set); size, 0.75 x 0.50.

*NORTHERN VIOLET-GREEN SWALLOW (*Tachycineta thalassina lepida*, Mearns).

Found the bird common everywhere from Penticton to Osoyoos. Breeds commonly in May and June. Vaseaux Lake, May 16th; Penticton, June 26th.

*BANK-SWALLOW (*Riparia riparia*, Linn.).

Common in suitable breeding-grounds. The bird was found in hundreds breeding in the holes along the banks at Dog Lake on May 16th. Most of the nests contained birds a few days hatched or eggs far advanced. Eggs five or six, whitish in colour; size averaging 0.70 x 0.50.

*ROUGH-WINGED SWALLOW (*Stelgidopteryx serripennis*, Aud.).

Collected several birds at Penticton, June 25th to 30th. A small colony of about forty birds were found breeding in holes in the low bank of the Okanagan River near Penticton. Two sets of eggs were taken, both hard set; nests contained seven whitish-coloured eggs; size, 0.75 x 0.52.

*CEDAR WAXWING (*Bombycilla cedrorum*, Vieill.).

Fairly common at Okanagan Falls, Vaseaux Lake, and Penticton in June. Nests and eggs collected at Okanagan Falls, June 20th; eggs measuring 0.85 x 0.60, of a dull greyish blue, blotched and speckled with black and brown markings, mostly towards the larger end.

*RED-EYED VIREO (*Vireosylva olivacea*, Linn.).

The commonest of the vireos found in the valley. Vaseaux Lake, May 22nd; Penticton, June 15th to 25th. Nest and eggs collected at Shuttleworth Creek, Okanagan Falls, June 6th; at Penticton, June 30th. The nests were suspended from the outer branches of deciduous trees, about 6 feet from the ground. Eggs four in number, whitish in colour, sparingly marked with blackish brown; size, 0.85 x 0.55.

*WESTERN WARBLING VIREO (*Vireosylva gilva swainsoni*, Baird).

A few were seen at Okanagan Falls, May 7th to 15th. Bird, nest, and eggs were taken at Penticton, June 25th. Building habits similar to the red-eyed vireo. Eggs four in number, white, spotted with dark-brown markings; size, 0.72 x 0.52.

*CASSIN'S VIREO (*Lanivireo solitarius cassini* Xan.).

Two specimens taken at Okanagan Falls, May 1st.

*LUTESCENT WARBLER (*Vermivora celata lutescens*, Ridg.).

Common at Okanagan Falls and Penticton, May 10th and June 20th. Breeds. Nests on the ground. Eggs four, white, speckled with reddish brown; size, 0.65 x 0.45.

*ALASKA YELLOW WARBLER (*Dendroica æstiva rubiginosa*, Pallas).

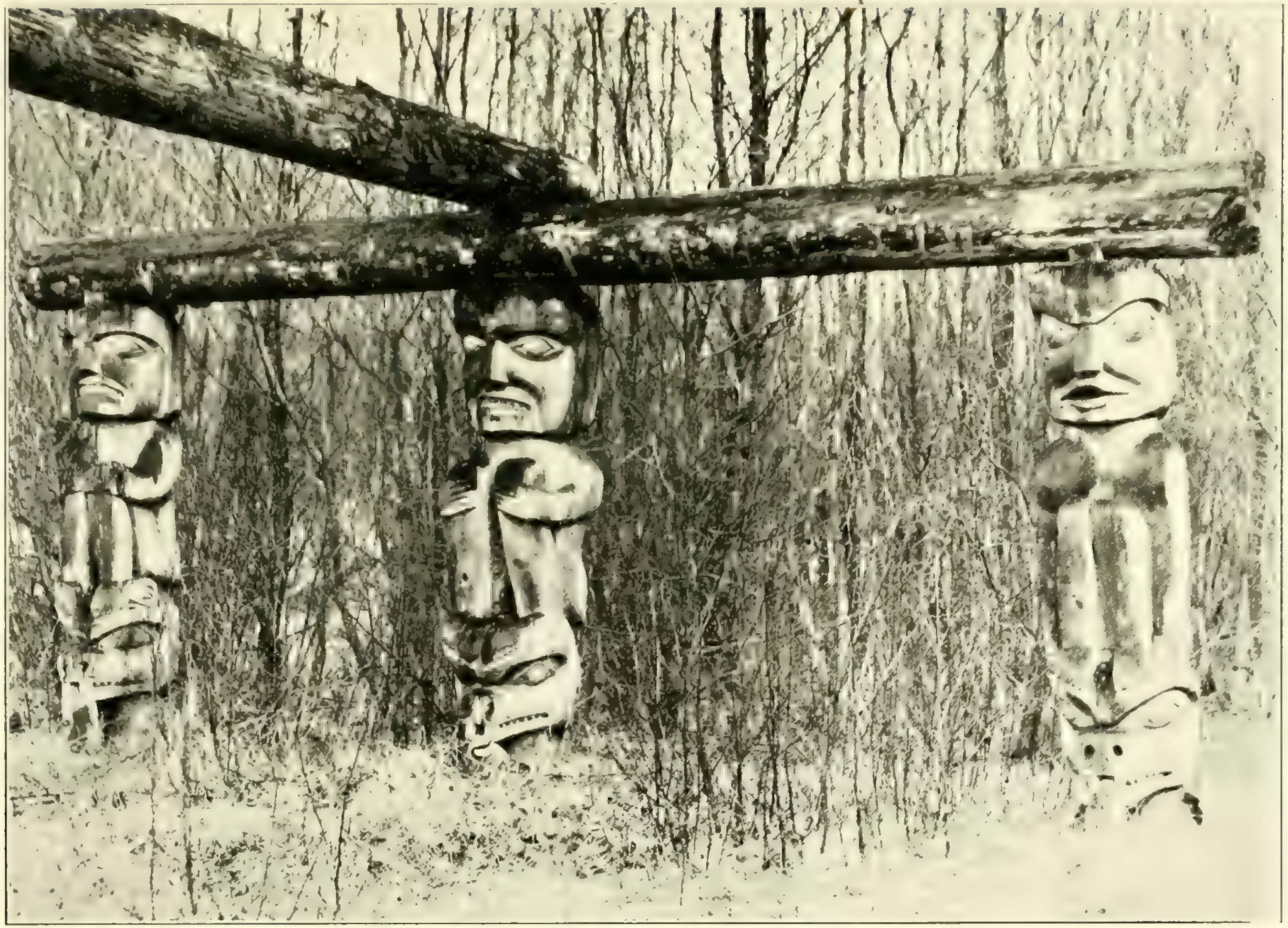
Breeds commonly. Collected at Vaseaux Lake, May 20th; Penticton, June 25th. Quite common at Vaseaux Lake and Dog Lake. Nests and eggs taken at Dog Lake on June 19th in bushes. Eggs four or five in number, of a dull whitish colour, spotted and blotched with various shades of brown and lilac; size, 0.65 x 0.50.

*AUDOBON'S WARBLER (*Dendroica auduboni auduboini*, J. K. Towns.).

Common at Okanagan Falls, May 1st to 10th; at Schoonover Mountain, June 1st.

*MACGILLIVRAY'S WARBLER (*Oporornis tolmiei*, J. K. Towns.).

One specimen taken at Schoonover Mountain (Sheep Creek) on June 3rd.



House Totem-poles, Knight Inlet, B.C.

*PACIFIC YELLOW-THROAT (*Geothlypis trichas arizela*, Oberh.).

Common at Vaseaux Lake, May 25th; at Okanagan River (Penticton) in June. One nest collected with two eggs; nest also contained a cowbird's egg. Nest in low bushes about 18 inches from the ground and close to river-bank. Eggs whitish, speckled with brown and amber; size, 0.70 x 0.50.

*LONG-TAILED CHAT (*Icteria virens longicauda*, Lawr.).

Fairly common at Penticton and Okanagan Falls. Specimen taken at Penticton, June 24th. Breeds along the river-bottoms.

*GOLDEN PILEOLATED WARBLER (*Wilsonia pusilla chryseola*, Ridg.).

A few seen at intervals at Okanagan Falls and Penticton. Specimen taken at Vaseaux Lake, May 28th and 30th.

*REDSTART (*Setophaga ruticilla*, Linn.).

Only found the bird at Penticton, June 10th to 24th. Nest and eggs collected at Penticton, June 10th. Nest placed in a crotch of bush about 5 feet from the ground. Eggs four in number, slightly incubated, white in colour, spotted with reddish and grey markings; size, 0.65 x 0.50.

*PIPIT (*Anthus rubescens*, Tunstall).

A flock of about 200 seen at Okanagan Falls, May 6th and 7th; specimen taken at Vaseaux Lake, May 7th.

DIPPER (*Cinclus mexicanus unicolor*, Bonap.).

Only two pair were seen, one at McLean Creek, April 25th, and the other at Okanagan Falls. On May 1st a nest was located at Okanagan Falls and shortly afterwards was swept away by the rising water. The bird did not attempt to rebuild in the same locality.

*CATBIRD (*Dumetella carolinensis*, Linn.).

Common from Penticton to Osoyoos. Nests and eggs taken at Penticton, June 15th to 30th. Nests placed in low bushes, containing four or five bluish-green eggs; size, 0.95 x 0.70.

*ROCK-WREN (*Salpinctes obsoletus obsoletus*, Say).

A few birds were seen at Vaseaux Lake, May 18th. By no means common.

WESTERN WINTER WREN (*Nannus hiemalis pacificus*, Baird).

One pair seen at Penticton (Four-mile Creek), April 12th; at Okanagan Falls (Shuttleworth Creek), May 1st to 6th. Not common.

*ROCKY MOUNTAIN NUTHATCH (*Sitta carolinensis nelsoni*, Mearns).

Found this bird common at Shuttleworth Creek, Okanagan Falls, April 25th to 30th.

*RED-BREASTED NUTHATCH (*Sitta canadensis*, Linn.).

Birds collected at McLean Creek, Okanagan Falls, April 28th. Not as common as Rocky Mountain and pygmy nuthatch.

*PYGMY NUTHATCH (*Sitta pygmæa pygmæa*, Vig.).

Common everywhere throughout the valley. Found nests at Vaseaux Lake, May 3rd and 22nd. Nest situated in a hole in a rotten stump about 15 feet from the ground. Eight eggs, whitish, speckled with reddish brown, size, 0.60 x 0.50.

*LONG-TAILED CHICKADEE (*Penthestes atricapillus septentrionalis*, Harris).

Okanagan Falls, May 6th; Vaseaux Lake, June 2nd.

*MOUNTAIN CHICKADEE (*Penthestes gambeli gambeli*, Ridg.).

Okanagan Falls, April 20th to 25th, May 1st to 8th. Fairly common.

*HUDSONIAN CHICKADEE (*Penthestes hudsonicus hudsonicus*, J. R. Forster).

Common at Schoonover Mountain (4,000 feet) in June. Nest and fresh eggs taken, May 31st; five eggs. Nest in hole in tree, eggs white, speckled with reddish brown; size, 0.60 x 0.45.

*RUBY-CROWNED KINGLET (*Regulus calendula calendula*, Linn.).

Common at Okanagan Falls, April, May, and June. Breeds on Schoonover Mountain at an altitude of 4,000 feet. Found old nest in pine-tree about 30 feet high.

*TOWNSEND'S SOLITAIRE (*Myadestes townsendi*, Aud.).

Collected specimens at Okanagan Falls, May 1st; at Schoonover Mountain, June 4th. Occasional birds seen on the higher altitudes.

*AUDUBON'S HERMIT THRUSH (*Hylocichla guttata auduboni*, Baird).

Two birds collected at Schoonover Mountain (3,800 feet), June 5th.

*ROBIN (*Planesticus migratorius migratorius*, Linn.).

Okanagan Falls, May 15th and June 10th. Breeds.

*WESTERN ROBIN (*Planesticus migratorius propinquus*, Ridg.).

Abundant everywhere. Breeds commonly in the valley in May.

*NORTHERN VARIED THRUSH (*Ixoreus nævius meruloides*, Swains.).

Birds collected at Okanagan Falls, April 25th. Few seen at Osoyoos, May 23rd.

*WESTERN BLUEBIRD (*Sialia mexicana occidentalis*, J. K. Towns.).

Common. Penticton, April 10th; Okanagan Falls, April 25th to 30th. Nest and eggs taken at Vaseaux Lake, May 22nd. Eggs six in number, of bluish colour; size, 0.80 x 0.60. A very interesting set of six white eggs collected at Okanagan Falls on June 17th in a hole in a stump.

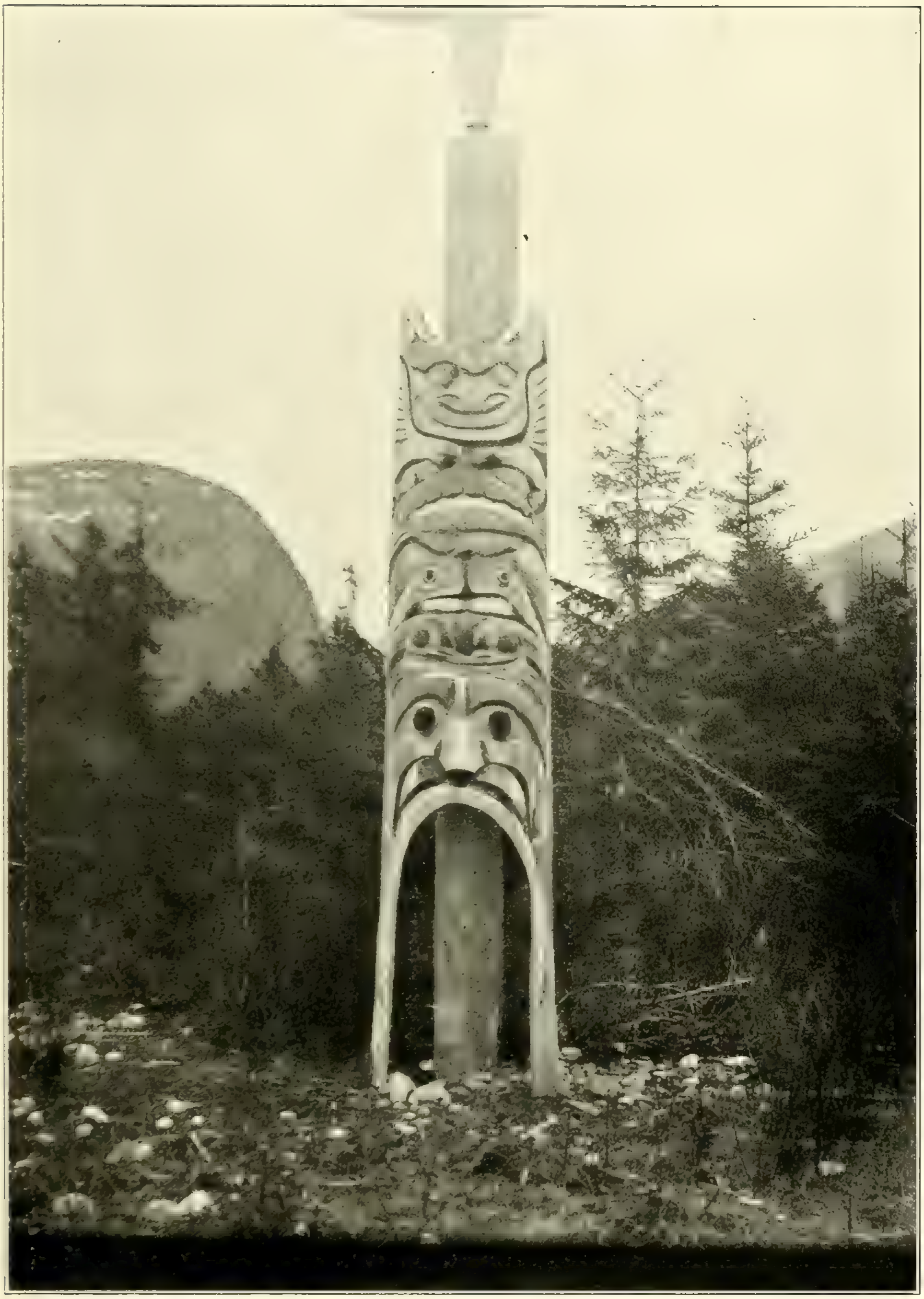
*MOUNTAIN BLUEBIRD (*Sialia currucoides*, Bech.).

Fairly common. Okanagan Falls, April and May; Penticton, June 20th.

LEPIDOPTERA COLLECTED IN THE OKANAGAN VALLEY.

BY E. M. ANDERSON AND C. B. GARRETT.

Papilio daunus. Common, May and June, Vaseaux Lake.
" *eurymedon*. Common, May and June, Vaseaux Lake.
" *rutulus*. A few taken at Vaseaux Lake, May 20th to 30th.
" *turnus*. Vaseaux Lake, Schoonover Mountain, May 15th and June 6th.
" *zolicaon*. Common. Okanagan Falls, May 10th; Schoonover Mountain, June 1st to 6th.
Pontia beckeri. Osoyoos, May 23rd.
" *sisymbri*. Okanagan Falls, April 12th, May 15th. Common.
" *occidentalis*. Okanagan Falls, April 12th, May 15th. Common.
" *rapæ*. Okanagan Falls, April 12th, May 15th. Common.
Synchloe creusa. Okanagan Falls, April 12th, May 15th. Common.
" *ausonides*. Okanagan Falls, April 12th, May 15th. Common.
" *sara*. Okanagan Falls, April 12th, May 15th, and June 6th.
Eurymus eriphyle. Vaseaux Lake, Okanagan Falls, May 20th to June 20th.
" *hatfordii*. Okanagan Falls, May 25th.
" *occidentalis*. Vaseaux Lake, May 18th; Osoyoos, May 25th.
Brenthis freija. Schoonover Mountain, common, June 1st to 6th.
" *bellona*. Schoonover Mountain, common, June 1st to 6th.
" *epithore*. Schoonover Mountain, common, June 1st to 6th.
Lemonias cooperi. Okanagan Falls, Vaseaux Lake, June 1st.
" *palla*. Vaseaux Lake, June 1st to 10th.
" *whitneyii*. Vaseaux Lake, June 1st to 10th.
" *baroni*. Vaseaux Lake, June 12th.
Phycoides pratensis. Okanagan Falls, June 11th.
" *mylitta*. Vaseaux Lake, June 10th.
Eugonia californica. Schoonover Mountain, June 1st.
Euvanessa antiopa. Okanagan Falls, April 15th.
Basilarchia archippus. Vaseaux Lake, May 14th to 30th.
" *lorquini*. Penticton, June 30th.
Cercyonis charon. Vaseaux Lake, June 15th.
Erebia epipsodea. Vaseaux Lake, Schoonover Mountain, June. Common.



Totem-pole. Talio, South Bentinck Arm, B.C.

Cœnonympha ampelos. Vaseaux Lake, Schoonover Mountain, May 15th, and June.
Anosia plexippus. Vaseaux Lake, May 15th to 30th.
Uranotes melinus. Okanagan Falls, May 20th.
Callipsyche behrii. Vaseaux Lake, June 16th.
Incasilia iroides. Okanagan Falls.
〃 *mossi.* Schoonover Mountain, June 1st to 6th.
〃 *eryphon.* Okanagan Falls, Schoonover Mountain, May 4th and June.
Epidemia zeroe. Vaseaux Lake, June 10th to 15th.
〃 *helloides.* Vaseaux Lake, common in June.
Cupido heteronea. Schoonover Prairie, June 1st to 6th.
〃 *fulla.* Okanagan Falls, Schoonover Mountain, common, May 20th, June 6th.
〃 *sæpiolus.* Okanagan Falls, Schoonover Mountain, common, May 20th, June 6th.
Nomiades antiacis. Common everywhere in the valley, May and June.
〃 *couperii.* Schoonover Mountain, June 1st to 6th.
Phædrotes sagittigera. Schoonover Mountain, June 1st to 6th.
Rusticus melissa. Vaseaux Lake, June 10th to 15th.
〃 *anna.* Vaseaux Lake, June 10th to 15th.
Cyaniris nigrescens. Common in April and May, Okanagan Falls.
Everes comyntas. Vaseaux Lake, May 20th.
Amblyscirtes vialis. Common in May and June, Okanagan Falls.
Pamphila palæmon. Schoonover Mountain, June 1st to 6th.
Erynnis manitoba. Vaseaux Lake, May 30th, Schoonover Mountain, June 5th.
Thymelicus cernes. Schoonover Mountain, June 3rd.
Thorybes pylades. Okanagan Falls, June.
Pholisora catullus. Okanagan Falls, Schoonover Mountain, June 1st to 6th.
Thanaos icelus. Vaseaux Lake, May 30th.
〃 *persius.* Okanagan Falls, June 1st.
Hesperia cæspitalis. Okanagan Falls, Schoonover Mountain, May and June. Common.

HERTEROCERA (MOTHS) COLLECTED IN THE OKANAGAN VALLEY, 1913.

By E. M. Anderson and C. B. Garrett.

Lepisesia ulalume. One rubbed specimen, Schoonover Mountain, June 3rd.
Marumba modesta. Penticton, July 5th, one specimen.
Samia columbia. Okanagan Falls, June 10th, one specimen.
Scepsis cockleyi (?). Penticton, June 28th, two taken at light.
Leptarctia californiata. Okanagan Falls, common in April and early part of May.
Isia isabella. Penticton, July 5th.
Apantesis achaia, var. *ornata.* Vaseaux Lake, May 30th to June 10th. Six specimens taken.
Androloma mac-cullochi. Common at Schoonover Mountain, June 1st to 6th.
Hadena cogitata. Penticton, July 3rd.
Xylomiges simplex. Okanagan Falls, common in May; took five in orchard.
〃 *perlubens.* Okanagan Falls, common in May; took five in orchard.
〃 *candida* Okanagan Falls, common in May; took five in orchard.
Grapiphora pacifica. Okanagan Falls, common in May; took five in orchard.
Stretchia normalis. Okanagan Falls, May 6th to 8th.
Xylina contenta. Common on blossoms, May 6th.
Cucullia (?). Okanagan Falls, May 1st to 5th, at light.
Rancora solidaginis. Okanagan Falls, May 3rd.
Orthosia crispa (?). Okanagan Falls, May 5th.
Heliothis (?). Vaseaux Lake, May 22nd, one specimen.
Drasteria erechtea. Okanagan Falls, May 5th to 20th.
〃 *crassiuscula.* Okanagan Falls, May 12th to 20th.
Euclidea cuspidea. Okanagan Falls, May and June. Common.
Nadata gibbosa. Penticton, June 5th, one specimen at light.
Gluphisia septentrionalis. Okanagan Falls, April 28th, one specimen at light.
Euthyatira pudens. Okanagan Falls, May 6th, one specimen at blossoms.

GEOMETRIDÆ (GEOMETERS) COLLECTED IN THE OKANAGAN VALLEY, 1913.

By E. M. Anderson and C. B. Garrett.

Tephroclystis (?). Okanagan Falls, May 1st to 10th, at light.
Hydria undulata. Okanagan Falls, April 27th.
Eois sideraria. Schoonover Mountain, June 1st to 6th. Common.
Lycia cognataria. Penticton, July 6th to 8th.
Marmopteryx marmorata. Okanagan Falls, May 4th.
Brephos infans. Okanagan Falls, May 1st.

COLEOPTERA (BEETLES) COLLECTED IN THE OKANAGAN VALLEY, 1913.

By E. M. Anderson and C. B. Garrett.

The following is a list of beetles collected in the Okanagan Valley. A miscellaneous collection of over 1,000 still awaits classification :—

Coccinella transversalis.
Comontis ovalis.
Corymbites fallax.
Trogisita chloridea.
Trichodes ornatus.
Didelonycha fulgida.
Saprinus lugens.
Lachnosterna errans.
Cincindella oregona.
" *obliquata.*
Haltica bimarginata.
Chalcophaga angulicollis.
Podabrus comei.
Platynus subsericeus.
Chalœins interuptus.
Creophillus villosus.
Clerus sphegus.
Elodes cordata.
Silpha lapponica.
Necrophorus melschemeri.
Melœ montanus.
Geoderces melanothrix.
Cleonus 4 lineata.
Rhagium lineatuna.
Leptura lœtifica.
Ellychnia californica.

MAMMALS COLLECTED IN THE OKANAGAN VALLEY, APRIL, MAY, AND JUNE, 1913.

By E. M. Anderson.

(Note.—Species collected on the trip are marked with an asterisk.)

*Mule-deer (*Cariacus macrotis*, Rich.).

Found it common at Okanagan Falls in nearly all the foot-hills. Male and female killed at Shuttleworth Creek, June 15th.

Bighorn (Mountain-sheep), (*Ovis canadensis*, Shaw).

Small herd of nine seen in the foot-hills at Shuttleworth Creek in May. Sheep are protected in this district. (No animals shot.)

*Flying-Squirrel (*Sciuropterus volans sabrinus*, Shaw).

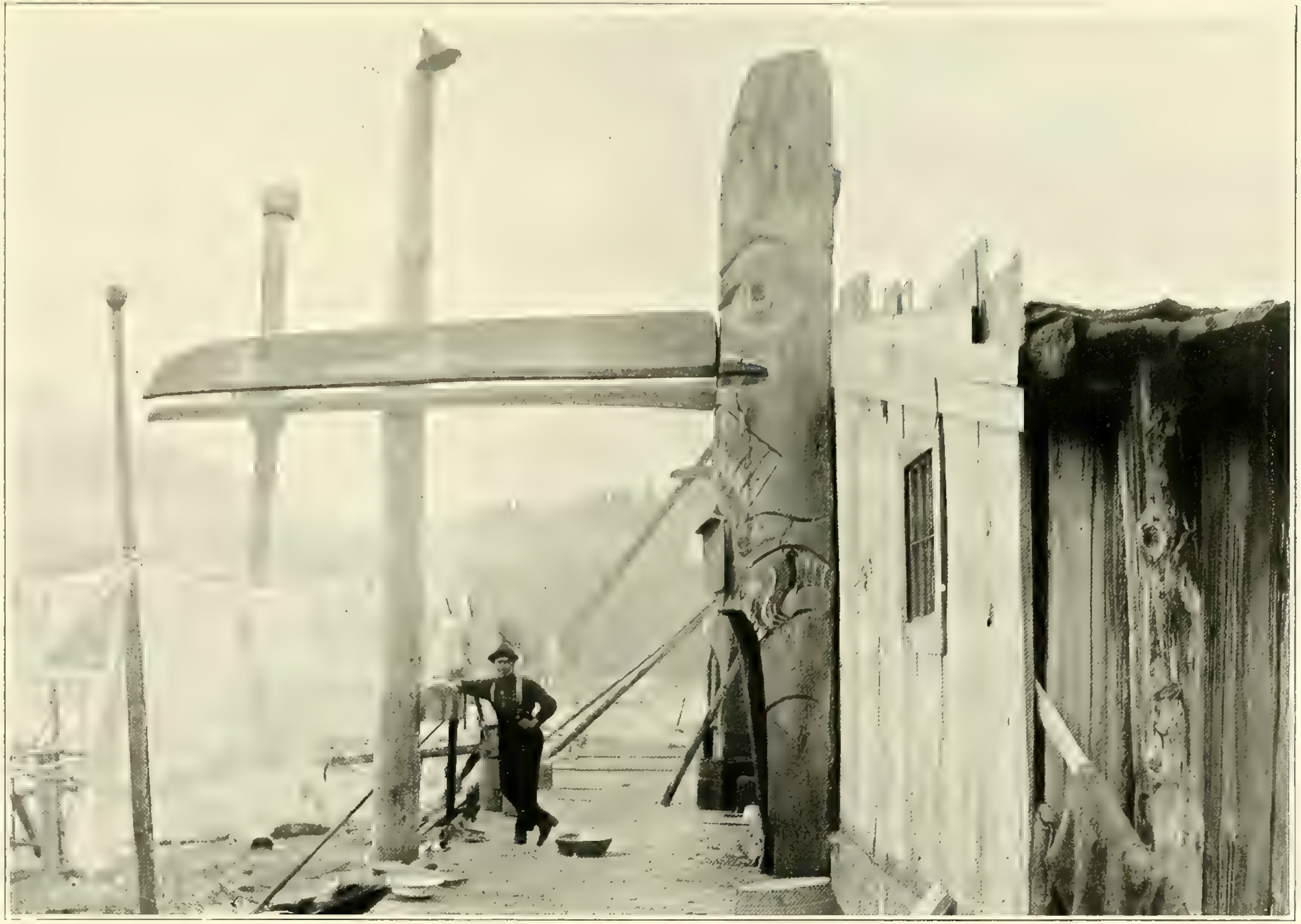
One specimen taken at Shuttleworth Creek, May 10th ; three others at Schoonover Mountain, June 1st to 6th.

*Squirrel (*Sciurus hudsonius vancouvernesis*, Allen).

Common everywhere in the valley. Specimens taken at Penticton, April 8th ; Okanagan Falls, April 15th to June 6th.

*Rocky Mountain Chipmunk (*Tamias quadrivittatus*, Say.).

Found it common at Okanagan Falls, April 20th, May 20th, and June 1st to 5th.



Totem-pole. Talio, South Bentinck Arm, B.C.

*MOUNTAIN GROUND-SQUIRREL (*Citellus oregonus* Merr.).

Common at Okanagan Falls, May 28th; Schoonover Mountain, June 1st to 6th.

*YELLOW-BELLIED MARMOT (*Marmota flaviventer*, A. & B.).

Specimens taken at Okanagan Falls, April 15th, May 20th, and June 12th. Common.

*BUSHY-TAILED WOOD-RAT (*Neotoma cinerea columbiana*, Elliot).

Okanagan Falls, May 6th; Schoonover Mountain, June 3rd and 4th.

*POCKET-GOPHER (*Thomonys douglasi fuscus* Merr.).

Common. Taken at Schoonover Mountain, June 3rd; Penticton, June 26th to 30th.

*NORTH-WEST POCKET-MOUSE (*Peroganthus Lordi*, Gray).

Penticton, April 8th; Okanagan Falls, May 11th to 30th; Schoonover Mountain, June 1st to 6th.

*MEADOW-VOLE (*Microtus ? sp.*).

Two species found. Common at Okanagan Falls, May and June.

*VARYING HARE (*Lepus Americanus washingtoni*, Baird).

Common at Okanagan Falls. Taken April 20th, May 10th and 22nd.

BLACK BEAR (*Ursus americanus*, Pallas).

One seen at Vaseaux Lake, June 7th.

SKUNK (*Mephitis occidentalis*, Baird).

One observed in field at Osoyoos Lake, May 23rd.

*BAT (*Myotis yumanensis saturatus*, Miller).

Taken at Vaseaux Lake, May 15th to 30th, June 14th.

NOTE.—Twenty-seven bats were taken at Vaseaux Lake. Three species still remain to be identified. Also several rodents await classification.

REPTILA.

*PACIFIC TERRAPIN (*Clemmys marmorata*, B. & G.).

Common on all the lakes. Taken at Vaseaux Lake, June 5th to 15th.

*BLUE-TAILED LIZARD.

One taken at Dog Lake on road-cut, June 10th.

*BULL-SNAKE (GOPHER-SNAKE), (*Pituopophis catinifer deserticola*, Stej.).

Common everywhere. Okanagan Falls, April 12th, May 6th; Vaseaux Lake, May 26th and June 7th.

*PACIFIC RATTLESNAKE (*Crotulus lucifer.*).

Common at Okanagan Falls and Vaseaux Lake, May 3rd, 20th, 26th, June 5th and 10th.

*BLUE RACER.

Okanagan Falls, May 28th; Vaseaux Lake, May 30th and June 10th. Common; the swiftest of all snakes in the valley.

NOTE.—Twelve unidentified frogs and toads were taken at Okanagan Falls.

REPORT ON BIRDS COLLECTED AND OBSERVED DURING SEPTEMBER, 1913, ON ATLIN LAKE, FROM ATLIN TO SOUTH END OF THE LAKE.

BY F. KERMODE AND E. M. ANDERSON.

(NOTE.—Species collected on the trip are marked with an asterisk.)

*HOLBŒLL'S GREBE (*Colymbus holbœlli*, Reinh.).

Atlin Lake, September 7th to 10th. Common.

*HORNED GREBE (*Colymbus auritus*, Linn.).

Atlin Lake, September 7th. Not as plentiful as Holboell's grebe.

LOON (*Gavia immer*, Brun.).

Seen on Atlin Lake, September 7th, 10th, and 19th.

*MALLARD (*Anas platyrhynchos*, Linn.).

Atlin Lake, September 7th to 20th. Common. Large flock seen at Pike River, September 9th.

*GREEN-WINGED TEAL (*Nettion carolinense*, Gmel.).

One specimen taken in swamp, Atlin Lake, September 10th.

SHOVELLER (*Spatula clypeata*, Linn.).

Four observed on September 11th near Copper Island, Atlin Lake.

*LESSER SCAUP-DUCK (*Marila affinis*, Eyton).

Female shot at Williams Creek, Atlin Lake, September 18th.

*GOLDEN-EYE (*Clangula clangula americana*, Bonap.).

Female taken at Atlin Lake, September 10th.

BLACK-BELLIED PLOVER (*Squatarola squatarola*, Linn.).

Three birds seen on the lake-shore at Atlin, September 28th.

*SOOTY-GROUSE (*Dendragopus obscurus fuliginosus*, Ridg.).

Female shot at Williams Creek, Atlin Lake, September 16th.

*ALASKA SPRUCE-GROUSE (*Canachites canadensis osgoodi*, Bish.).

Common at Atlin. Ten specimens collected, Pike River, Atlin Lake, September 9th to 25th.

*GRAY RUFFED GROUSE (*Bonasa umbellus umbelloides*, Doug.).

One specimen taken near Atlin, September 27th.

*WILLOW-PTARMIGAN (*Lagopus lagopus lagopus*, Linn.).

Specimens taken at Blue Canyon, near Atlin, September 28th.

*ROCK-PTARMIGAN (*Lagopus rupestris rupestris*, Gmel.).

Five birds shot at Blue Canyon, Atlin, September 28th. Both willow and rock ptarmigans were found in the same flock.

*WHITE-TAILED PTARMIGAN (*Lagopus leucurus leucurus*, Swains.).

One specimen at Pine River, Atlin Lake, September 10th.

*MARSH-HAWK (*Circus hudsonius*, Linn.).

One specimen at Pine River, Atlin Lake, September 10th.

BALD EAGLE (*Haliætus leucocephalus leucocephalus*, Linn.).

One bird observed on wing, Atlin Lake, September 8th.

*DESERT SPARROW-HAWK (*Falco sparverius phalœna*, Less.).

Immature male taken at Pike River, Atlin, September 10th. Three others seen, September 15th and 18th, at Williams Creek, south end of Atlin Lake.

DUSKY HORNED OWL (*Bubo virginianus saturatus*, Ridg.).

One observed in camp at Williams Creek, Atlin, September 14th.

*HAWK-OWL (*Surnia ulula caparoch*, Müller).

Fairly common at south end of Lake Atlin. Specimens taken, September 8th to 16th.

BELTED KINGFISHER (*Ceryle alcyon*, Linn.).

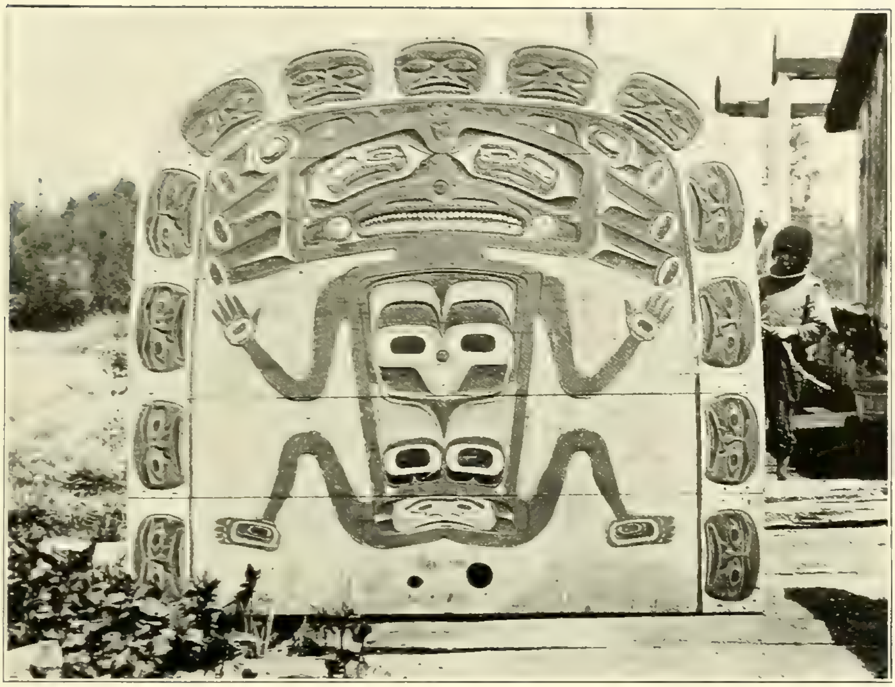
An occasional bird observed at Atlin Lake, September 9th to 20th.

*ALPINE THREE-TOED WOODPECKER (*Picoides americanus dorsalis*, Baird).

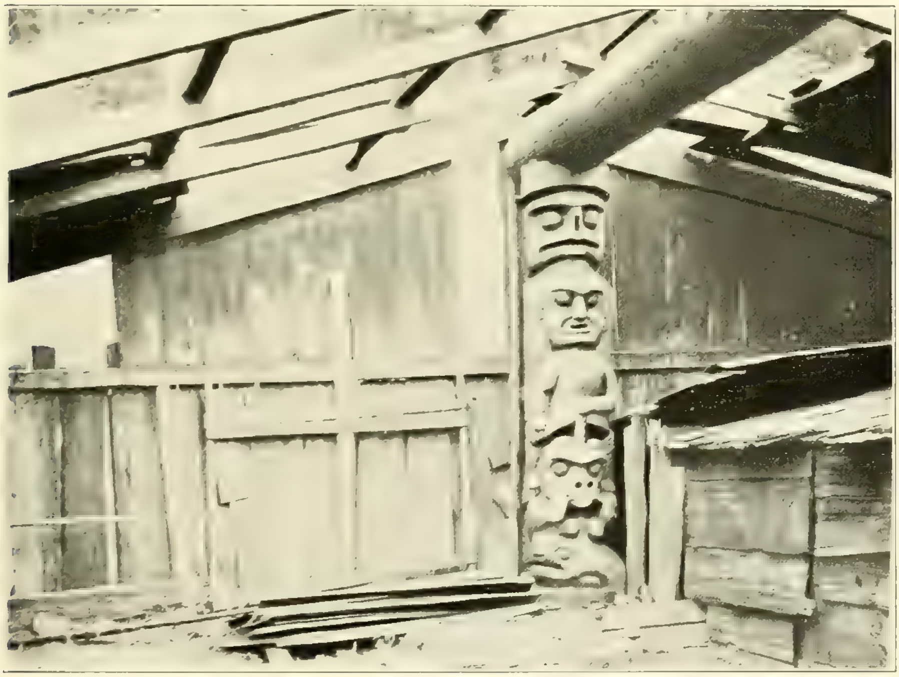
One specimen taken at Williams Creek, September 16th.

*ALASKA JAY (*Perisoreus canadensis fumifrons*, Ridg.).

Common at Atlin. Specimens collected at Pike River, September 7th, 10th, and 15th.



Tsimshian Chief's Crest-board, Nass River, B.C.



Kwakiutl, Totem-pole, Quatsino, B.C.

NORTH-WESTERN CROW (*Corvus caurinus*, Baird).

Birds common at Atlin, September 1st to 29th.

RUSTY BLACKBIRD (*Euphagus carolinus*, Muller).

One specimen seen near Baker Lake, September 19th. Identity certain.

HEPBURN'S ROSY FINCH (*Leucosticte tephrocotis littoralis*, Baird).

A flock of about fifteen birds seen near summit of mountain, south end of Atlin Lake, near Moose River, September 8th.

GOLDEN-CROWNED SPARROW (*Zonotrichia coronata*, Pallas).

About a dozen birds were seen at Atlin, September 4th to 12th.

SLATE-COLOURED JUNCO (*Junco hyemalis hyemalis*, Linn.).

Birds observed at Atlin, September 5th and 8th.

BOHEMIAN WAXWING (*Bombycilla garrula*, Linn.).

Flock of about fifty seen at Pike River, Atlin Lake, September 10th.

AUDUBON'S WARBLER (*Dendroica auduboni auduboni*, J. K. Towns.).

Common at the south end of Atlin Lake, September 7th, 8th, and 14th.

PIPIT (*Anthus rubescens*, Tunstall).

Common at Pike River, September 10th to 15th.

*LONG-TAILED CHICKADEE (*Penthestes atricapillus septentrionalis*, Harris).

Atlin, Williams Creek, September 10th.

*HUDSONIAN CHICKADEE (*Penthestes hudsonicus hudsonicus*, J. R. Forster).

Williams Creek, September 18th. Two specimens taken.

TOWNSEND'S SOLITAIRE (*Myadestes townsendi*, Aud.).

One bird seen on the mountain-side, Atlin Lake, September 9th.

ROBIN (*Planesticus migratorius migratorius*, Linn.).

Atlin Lake, September 4th to 28th.

MAMMALS COLLECTED IN THE ATLIN DISTRICT, SEPTEMBER, 1913.

BY F. KERMODE AND E. M. ANDERSON.

(NOTE.—Specimens collected on the trip are marked with an asterisk.)

*MOUNTAIN-GOAT (*Oreamnos montanus*, Ord.).

Three were observed from the lake on Cathedral Mountain, Atlin Lake, September 11th. Male and female killed on mountain at Williams Creek, south end of Atlin Lake, September 14th and 15th. Two others seen near the top of a high peak above Baker Lake.

*RED SQUIRREL (*Sciurus hudsonius*, Erx.).

Three collected at Moose River, Atlin, September 10th to 12th.

*NORTHERN CHIPMUNK (*Tammias quadrivittatus borealis*, Allen).

One specimen taken at Pike River, Atlin, September 11th.

*JUMPIMG-MOUSE (*Zapus hudsonius*, Zimm.).

Male taken at Moose River, Atlin, September 12th.

*VARYING HARE (*Lepus americanus*, Erx.).

Three collected at Pike River, September 10th to 15th. Common.

*BLACK BEAR (*Ursus americanus*, Pallas).

Male killed near Pike River, September 12th. Skin is dark brownish in colour.

*BAT (*Myotis sp.*).

Male and female taken at Moose River, September 11th.

ACCESSIONS, 1913.

Jan. 8. 1 Mallard.
1 Lesser Scaup-duck.
2 American Scaup-duck.
1 Barrow's Golden-eye.
3 American Golden-eye.
4 Buffalo-head.
2 Killdeer Plover.
1 Black turnstone.
4 Hepburn's Leucosticte.
1 Snowflake.
1 Rat.

Collected at Parksville, B.C., by E. M. Anderson.

Jan. 22. 1 Mourning-dove. Presented by H. Dodd, Telegraph Creek, B.C.
〃 25. Rib of a whale. Found on Saturna Island, B.C.; presented by C. A. Lewis.
〃 29. Reeve's Pheasant (male). Presented by Dr. Brown, Nanaimo.
Feb. 3. White-crested Cormorant, Sidney, B.C. Presented by Mrs. Nicholson.
〃 5. Ratfish. Presented by J. Lucas, Victoria.
〃 7. Evening Grosbeaks (male and female), Parksville, B.C. Presented by G. H. Petticrew.
〃 9. Flying squirrels (4), Broadwater, B.C. Presented by A. Campbell.
〃 15. Trumpeter-swan, Qualicum, B.C. Presented by J. Graham.
〃 16. Holbœll's Grebe (male). Picked up on beach and presented by E. G. Kermode.
〃 17. 6 Willow-ptarmigan, Atlin, B.C. Presented by Horace Fraser.
〃 17. 5 White-tailed Ptarmigan, Atlin, B.C. Presented by Horace Fraser.
March 10. Barnacle, Esquimalt, B.C. Presented by F. Saunders.
〃 10. 1 White-tailed Ptarmigan, Nicola, B.C. A. B. Williams.
〃 3 Mountain-goat heads, Bella Coola. Purchased.
〃 Mule-deer (whole skin). C. B. Garrett, Cranbrook.
〃 1 White-tailed Deer. C. B. Garrett, Cranbrook.
1 White-tailed deer head. C. B. Garrett, Cranbrook.
〃 17. 1 Sharp-tailed Grouse, Grande Prairie, B.C. F. Kermode.
〃 17. 1 Varying Hare, Grande Prairie, B.C., F. Kermode.
〃 10. Collection of African arrows. H. W. Seaton-Karr.
April 6. Cassin's Purple Finch. Presented by Junior Audubon Society, Nelson.
〃 23. 3 Sooty-grouse, Malahat, V.I. F. Kermode.
〃 25. Crayfish. Found in Colquitz Creek, Victoria, and presented by J. D. Anderson.
May 11. Crab, Victoria. Presented by M. Cancellor.
〃 17. North-west Coast Heron eggs, Saturna Island. F. Kermode.
〃 17. Crow's nest and eggs, Bare Island. F. Kermode.
〃 17. Starfishes, Bare Island. F. Kermode.
〃 19. 2 Indian stone pestles. Presented by J. McKay, Enderby.
〃 3. 2 Moose heads and scalps. Purchased.
4 Stone's Sheep heads and scalps. Purchased.
1 Albino Moose (whole skin), female. Telegraph Creek, B.C.
1 Grizzly Bear, leg-bones and skull, Telegraph Creek, B.C.
〃 24. 2 Black Bear cubs. Purchased at Bella Coola.
June 14. Fossils (Shells, etc.). Presented by Miss Bonavia, Victoria.
〃 25. Sea-lion. Dr. C. F. Newcombe.
〃 25. Sea-lions (2). F. Kermode.
July 5. Land-otter skull, Mink Trap Bay, Pitt Island (caught in a trap). Presented by W. A. Newcombe.
〃 17. Catfish. Collected at Langford Lake. E. M. Anderson.
〃 17. 3 Sunfish. Collected at Langford Lake, E. M. Anderson.
〃 26. Hairworm, Bella Coola. Presented by E. R. A. Russell.
Sept. Skeletons of snake swallowing horned lizard. R. H. Machen.
Oct. 1. Moose-head. Purchased at Atlin.
〃 1. Fannin's Sheep head. Purchased at Atlin.
〃 1. 2 Stone's Sheep head. Purchased at Atlin.
Nov. 1. Osborne's Caribou (male). Purchased at Atlin.
〃 1. Albatross-eggs. Presented by Allan Ouston, Yokohama.
Dec. 4. 2 Black Rats. Presented by Tatham and Dangerfield, Victoria.
〃 15. Indian curios, carved-bone bark-knife, weaving-needle, etc., found in railway-cutting three miles from Ashcroft. Presented by C. Branson.

ANTHROPOLOGY.

Report of C. F. Newcombe, M.D., for 1913.

138 Dallas Road,
Victoria, B.C., Dec. 31st, 1913.

F. Kermode, Esq.,
Director, Provincial Museum, Victoria, B.C.

Sir,—I have the honour to report that during the current year I have collected material and data for the anthropological section from the following Indian villages, and from a few private collections.

In the beginning of February I went over to Vancouver to look at a collection of Upper Skeena curios, which I purchased, finding that the specimens would fill up one or two blanks from that locality. On my return to Victoria I acquired another small collection of Nass River material.

In the latter part of February I went to the following Lower Fraser villages: Upper and Lower Sardis, Chilliwack, Chehalis, and Yale. Old material is very scarce in this locality. I purchased two blankets (which were left to be decorated), a long river-canoe, and a number of small articles and foods, and gave orders for models where necessary.

The first week in March was spent in Vancouver and vicinity, getting in touch with the owners of some very interesting specimens. I succeeded in purchasing a collection containing sixty-five specimens from the Yale District, and also a dozen of the rare Chilcotin baskets.

On March 18th I left for the Kwakiutl and Bella Coola Districts. On leaving the boat at Alert Bay, I found the Indians in the middle of a large potlatch and far too occupied to attend to me, so I went on to Hardy Bay and across to Quatsino. Here, among other things, I purchased a fine inside pole, negotiations for which were opened last year.

From Quatsino I went back to Hardy Bay and took a steamer to Bella Coola. Here were secured a set of nets, traps, boxes, strainers, etc., used in the oolachan industry, also a number of masks and ceremonial objects. Then I took a short trip to Talio, South Bentinck Arm, where two totem-poles and two grave-figures were purchased.

On the return trip from Bella Coola the steamer called in at Kimsquit, where I was lucky in getting a small shovel-nose canoe used in river navigation.

I left the steamer at Alert Bay, but, finding it impossible to do anything for a week, paid a hurried visit to Victoria, arriving back in Alert Bay on April 16th, where I chartered a gasolene-boat to run up Knight's Inlet. At Tsawadi, the village at the head of the inlet, I found the three poles with the carved beam, which you had reported to me, too far gone to purchase, but managed to secure one carving, as well as to open negotiations for others, which were photographed. We called at Tlaoitsis on the way back, where a few masks and ceremonial objects were purchased.

On my return to Alert Bay, I managed to uncover one or two specimens of particular interest, the chief of which being the board sail which you now have. This is the first of its kind secured by any museum to my knowledge.

On May 1st I joined the sloop "Nymphe," Captain Spring, which arrived from Victoria two days previously; the object being to gather information and inspect the haunts of sea-lions, as well as to continue my collecting for the Museum.

On the way north we called at Fort Rupert, Nahwitte (where we purchased an inside totem-pole), Namu, Bella Bella, China Hat, and the Tsimshian villages, Kitkatla, Metlakatla, and Fort Simpson. Specimens were secured at many of these places.

I spent the latter part of May on the Nass River, visiting Lakalzap, Gitex, Angidah, Guinecha, Ayansh, Kitladamix, and Kincolith, and, although many purchases were made, the Indians would not part with any of their larger carvings except at exorbitant prices. We secured photographs of nearly every totem-pole and many smaller objects.

On June 1st we crossed over to the Queen Charlotte Islands, making our first call at Masset, where a large majority of the Indians were away. On cruising around the north and west coasts of Graham Island we called in at the deserted villages, Jan, Kung, Yats, Kiusta, and Chaatl, securing specimens at one or two places and photographing the totem-poles at all the villages.

After having called at Skidegate, we worked our way south on the east side of Moresby Island, but only stopped at Ninstints and Kaidsu while in southern waters. On crossing back to the Mainland, a landing was not made until upon arriving at Bella Bella for supplies. Continuing south, we called at the fishing camp on Goose Island, afterwards proceeding to Namu, where you joined us; and coming south by steamer to Victoria, after the visit to Pearl Rocks, arriving home on June 28th.

The latter part of July was spent on the north and west coasts of Vancouver Island, studying the habits of the sea-lions. Quatsino, Nootka, and Ucluelet were visited on the way south, but it was not possible to do any anthropological work, as all the Indians were away fishing at that time of the year.

In the middle of September I made a quick trip to Chilliwack and vicinity to pick up material previously ordered, and through the kind aid of Mrs. Hulbert I was able to interest certain Indians of the Lower Fraser in the gathering of desirable specimens during the winter months.

In the early part of October I went north, and at Alert Bay made arrangements for repairing and painting the pole bought at Tsawadi in the spring, and paid for the other four poles for which negotiations had previously been opened.

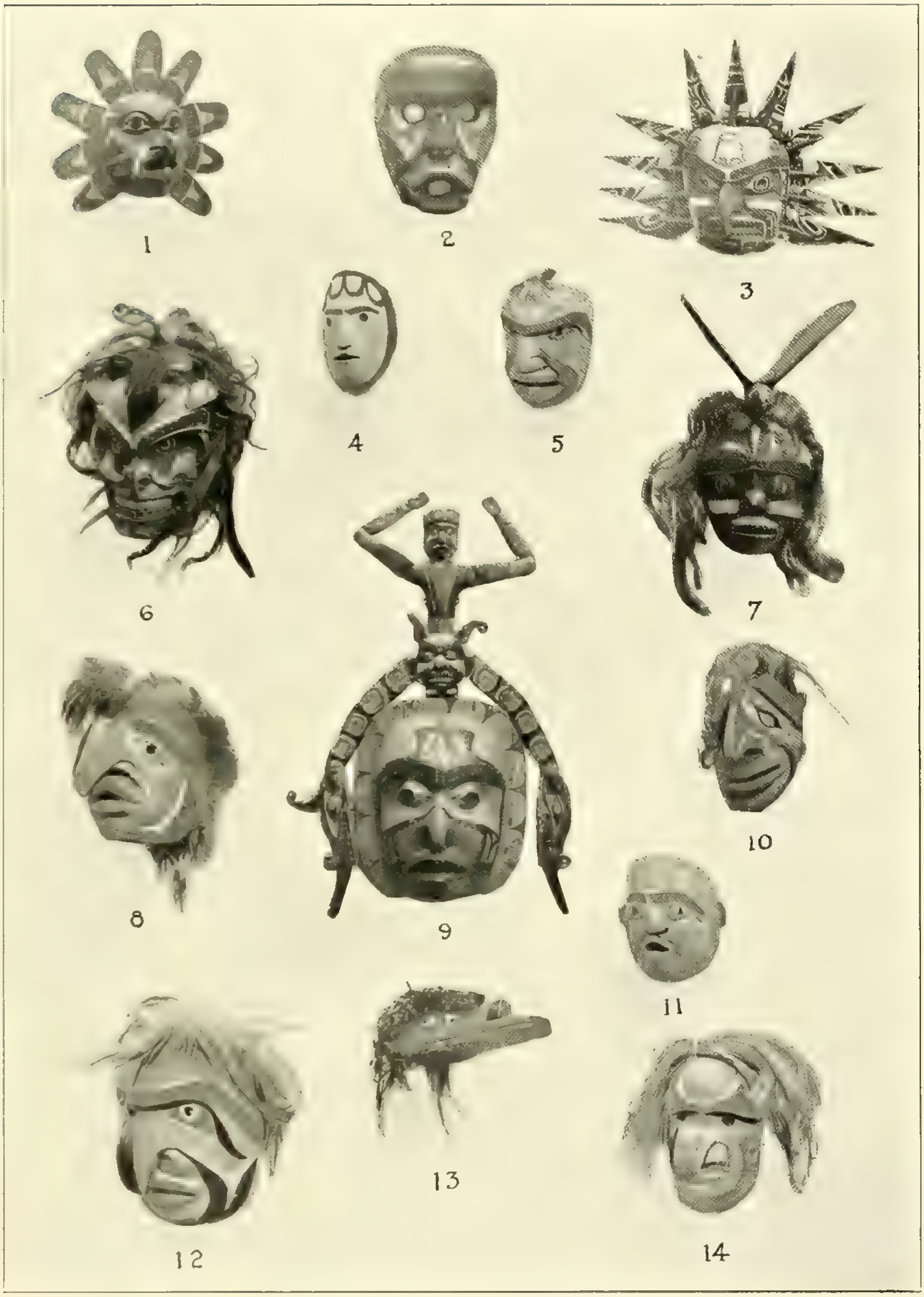
Comox, Courtenay, and Nanaimo were also visited in October, but I could not get the specimens required, as they were in private hands.

I finished the season's collecting with a trip to Alberni, where with Dr. Sapir, Anthropologist of the Geological Survey of Canada, I ordered models of certain implements formerly used by the West Coast Indians.

You already have my annotated list of specimens collected during the year.

I have, etc.,

C. F. NEWCOMBE.



Dance-masks of the Kwakiutl Tribe.

LIST OF SPECIMENS COLLECTED BY C. F. NEWCOMBE, M.D., 1913.

Tsimshian.

Whistle of bone.
Puberty tube, bone.
Doctor's rattle.
" crown of claws.
" "
" apron with rattles of hoofs.
" spirit-catcher, antler.
" charm of leather.
" " plumed feathers.
" head ornament of eagle quills.
" " "
" leggings of cloth.
" charm, small canoe.
" head-dress.
Dog-eater's head-band.
Dog-eater's collar.
Whistles (4).
Doctor's wig of hair.
Chief's blanket of cloth.
Hat disks.
Toys (2).
Wooden spoons (4).
Horn spoons (2).
Leather bag.
Bag of cedar bark.
Man's cap of skin.
" "
Mat of rabbit-skin.
Mat of squirrel-skins.

Salish.

Vegetable food.
"
"
"
"
Oolachan-net.
Dish.
Spoon.
Paddles (2).
Bailer.
Fish-knife.
Ball of wool.
Stone cut for adze.
Dishes (2).
Adze.
Snow-shoes.
Cradle.
Basket.
Snow-shoes.
Canoe-mat.
Fish-basket.
Chilcotin baskets (12).

Kwakiutl.

Seal dish,
Dsonoqua dish.
Box, inlaid opercula.
" carved.

Haida.

Canoe.
Blankets (2).
Box.
Pipe.
Chisel.
Spear-head.
Soapstone object.
" bait (?).
Carved figures (4).
Stone hammers (3).
Slate fish-knives (5).
Stone war-club.
Whetstone.
Pipes (2).
Chisels (10).
Spear-points (7).
Arrow-points (26).
Stone disk wampum (2).
Copper "
Soapstone pendants (2).
Knives or chisels, small (2).
Knife, broken.
Soapstone objects (2).
Nephrite block.
Stone disk.
Polished agate.
Soapstone object.
Nephrite knife, unfinished.
Rope of cedar twigs.
Mat-creaser.
Spoon.
Awl.
Skin.

Kwakiult.

Slave-killers, Koskimo (2).
Masks (2).
Rigs for small fish (2).
Box with lid.
Berry-dishes (3).
Berry-crusher.
V-shaped box.
Ceremonial tongs (2).
Rattles (2).
Ladles (2).
Dishes (2).
Baton.
Scrapers, claws, and shells (2).
Totem-pole.
Figure.

Bella Coola Salish.

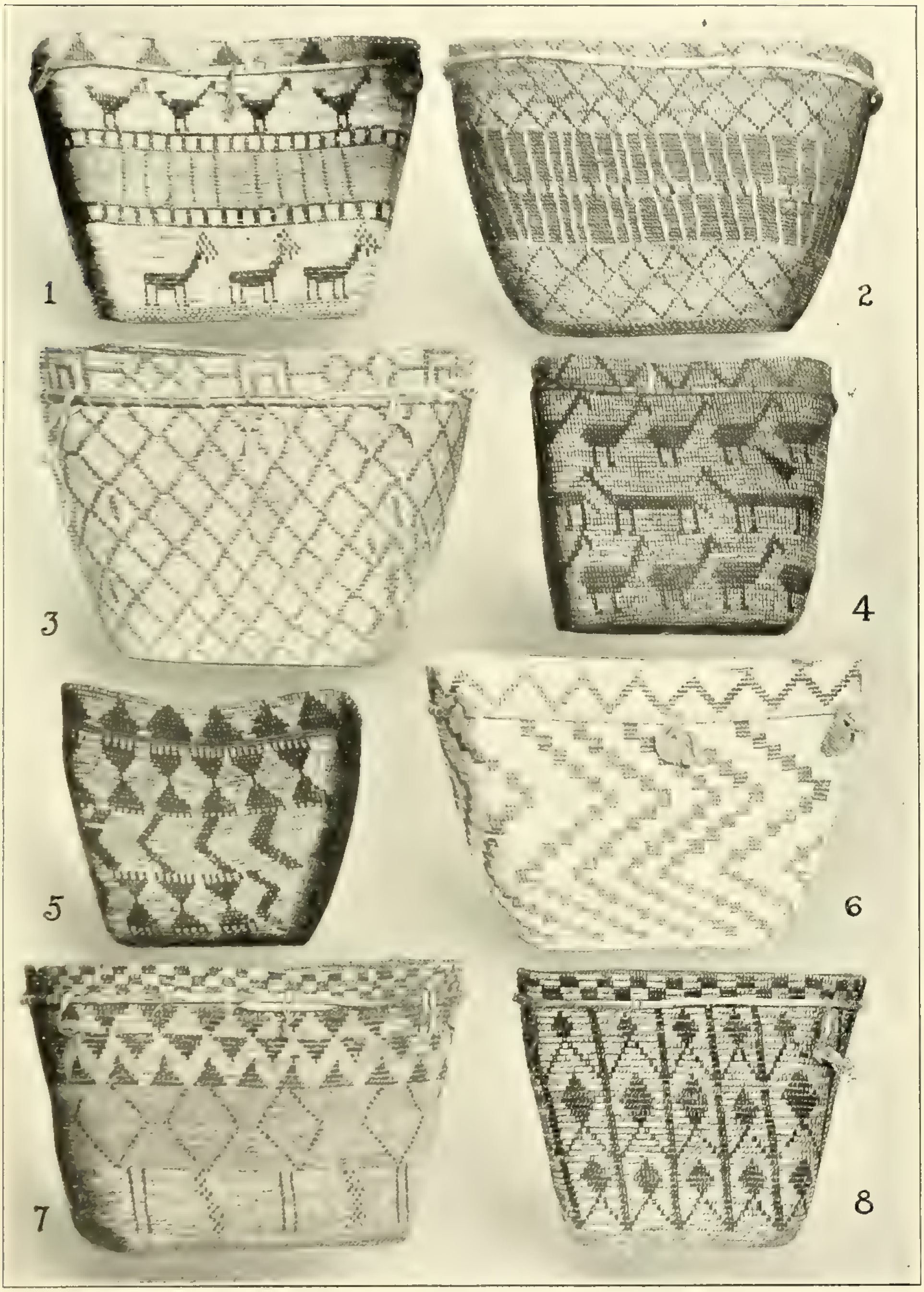
Oolachan-trap.
Digger.
Blanket of fur.
Fish-spear.
Cap.
Oil-box.
Cradle of sticks.
Mortar.
Maul.
Canoe.
Strainer.
Tongs.
Basket for hot stones.
Clover-roots.
Wedges (2).
Oolachan-net.
Salmon-spear.
Dried berries.
Bailer.
Paddle.

Kwakiutl.

Hammer-stones (2).
Berry-frame.
Game-stone.
Hammer for wedges.
Chief's stick.
Blanket of goat's wool.
Totems (2).
Monuments, bear (2).
Mask, sun.
Chief's rattle.
Heligya's rattle.
Mask, sun, of Sisuiltais.
Canoe-box.
" V-shaped.
" square ends.
Baton.
Maul, stone.
Hammer-stone.
Canoe mending cleat (2).
Stone chisel.
Whistle in two pieces.
Board sail.
Whale mask.
Wash-bowl.
Dip-net and sticks (3).
Crushing-stone.
Pile-driver.
Adze.
Masks (9).
Neck-ring.
Blanket of cloth.
Frame, slat.
Bark-chopper.
Sun mask, Sisuitl and man.
Mask, Numasacumlis, butterfly top.
" Gulukwiwi.
" Buquis.
" Nutlmatl.
" Dsonoqua.
Hammer-stone.
Small box.
Chief's stick of yew.
Chief's stick of yellow cedar.
Blanket.
Chief's seat.
Net-sticks (2).
Small chisel.
Canoe.
Stone hammer.

Tsimshian.

Fish-club.
Duitziq.
Figures (2).
Chisel.
Hand-hammer.
Maul.
Mortar.
Spear-point.
Rattle.
Totem-pole.
Ladle.
Wedges (3).
Spoon.
Beaver-tooth in jar.
Spear-shaft.
Stone hammers (3).



Chilcotin Baskets.

Tsimshian.—Concluded.

Dish.
Gambling-sticks.
Hammer-stone.
Horn spoon.
Charm-stone.
Doctor's stick.
Horn spoon.
Slate mirror.
Mortuary model.
Pestle.
Needle.
Horn spoon.
Stone hammer.
Needle and string.
Spoon, goat's horn.
Spoons (3).
Bark-stripper.
Stone adze.
Stone hammer.
Carver board.
Spoon.
Mortar, paint, and brush.
Charm-stone.
Painted chest.
Doctor's box.
Wooden figure.
Doctor's "
  " bearskin charm.
  " "
Stone adze.
Face of amalite.
Tlingit basket.
Skin charms (2).
Pecten rattle.
Amalite.
Sinker.

Stone adze (2).
Skin-scraper.
Frog carving.
Charm-stone.
  " bone.
  " teeth.
Fasting-stones.
Stone charm.
Wooden spoons (2).
Hammer.
  " oblong with rounded ends.
  " " squared ends.
Bark blanket.
Fighting-club.
Mask.
Spoons.
Bag of maple.
Arrow-points (2).
Mirror.
Basket of maple bark.
Doctor's weasel charm.
  " rattles (2).
  " crowns (2).
  " apron.
  " rattle.
Gambling-sticks.
Charm-bones (3).
Spoon.
Mortars (2).
Spindle whorl.
Grease-skimmer.
Stone pestle
Box.
Face of amalite.
Mortar.
Adze (2).

Haida.

Doctor's blanket.
  " beating-sticks.
  " box.
Carved board.
Hammer-stone.
Labret.

Slate totem-models (2).
Slate dish.
Sinker.
Oval stone.
Indian tea.

COLLECTION MADE BY J. A. TEIT FROM THE INTERIOR TRIBES OF BRITISH COLUMBIA, 1913.

Interior Salish (Ntlakyapamuk or Thompson River Tribe).

Riding-saddle of wood.
Floor or bed mat of rushes (3).
Bags, woven of rushes and bark (3).
Rain-cloak of bark.
Baby-carrier of dressed skin.
Deer-skin floor or bed mat.
Coiled basketry carrier.
Floor or bed mat of rushes and bark.
Man's head-band, loon-skin.

Athapascan (Chilcotin Tribe).

Rabbit-skin robe.

Interior Salish (Ntlakyapamuk).

Floor or bed mat.
Woman's cloak.
Short leggings, skin.
Head band or cap, bear-cub skin.
Cap of squirrel-skin.
Man's shoulder-sash, marmot-skin.
Boy's cap, squirrel-skin.

NOTE.—All the Ntlak. specimens are from the Nicola Valley, Spences Bridge, divisions of the tribe.

Ntlak. Tribe.

Cap of marmot-skin.
" rabbit-skin.
" goat-skin.
" marmot and coyote skin.
Head-band of bark, etc.
Cap of hoary marmot-skin.
Apron, squirrel-skins.
Vest or poncho, skins.
" deer-skin.
" coyote-skin.
Man's cap of coyote-head skins.
Bag of deer-skin.
" squirrel-skin.
" rabbit-skin.
" coyote-skin.
Resting-stick.
Soap-berry spoon.
Basketry spoon.
" rattle.
Cedar-bark head-band.
Robe of bark.
Cape of bark.
Skirt of bark.
Pair leggings, bark.
Cap of bark.
Three wooden fish-hooks.
Lodge-mat, two goat-skins.
Woman's cap of squirrel-skins.
Trays of alderwood (2).
Poncho, deer-skin.
Large bark bag.
" basketry bag.
" burden basket.
Small "
Baskets (3).
Fancy baskets (5).
Small trunk-shaped basket.
Oblong basket.
Fancy baskets (15).
Basketry tray.
" (4).
Open-work basket.
Birch-bark baskets (6).
Netted carrying-bag.
Mat of bark.
Bag of bark.
" pleated bark.
Rawhide bag.
Bark bag.
Woman's cap of bark (2).
Handle of root-digger.
Man's cap, deer-skin.
Poncho of coyote-skin.
Bag of bark.

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VICTORIA, B.C.:
Printed by WILLIAM H. CULLIN, Printer to the King's Most Excellent Majesty.
1914.

PROVINCE OF BRITISH COLUMBIA

REPORT

OF THE

PROVINCIAL MUSEUM

OF

NATURAL HISTORY

FOR THE YEAR 1914.

Smithsonian Inst.
APR 8
231537

THE GOVERNMENT OF
THE PROVINCE OF BRITISH COLUMBIA.

PRINTED BY
AUTHORITY OF THE LEGISLATIVE ASSEMBLY.

VICTORIA, B.C.:
Printed by William H. Cullin, Printer to the King's Most Excellent Majesty.
1915.

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PROVINCE OF BRITISH COLUMBIA

British Columbia Provincial Museum

REPORT

OF THE

PROVINCIAL MUSEUM

OF

NATURAL HISTORY

FOR THE YEAR 1914.

Smithsonian Institution
APR 8 1915
National Museum

THE GOVERNMENT OF
THE PROVINCE OF BRITISH COLUMBIA.

PRINTED BY
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VICTORIA, B.C.:
Printed by WILLIAM H. CULLIN, Printer to the King's Most Excellent Majesty.
1915.

To His Honour Frank Stillman Barnard,
Lieutenant-Governor of the Province of British Columbia.

May it please Your Honour:

The undersigned respectfully submits the Annual Report of the Provincial Museum of Natural History for the year 1914.

HENRY ESSON YOUNG,
Provincial Secretary.

Provincial Secretary's Office, January 21st, 1915.

Provincial Museum of Natural History,
Victoria, B.C., January 21st, 1915.

The Honourable H. E. Young, M.D.,
Provincial Secretary, Victoria, B.C.

Sir,—I have the honour, as Director of the Provincial Museum of Natural History, to lay before you the report for the year 1914, covering the activities of the Museum.

I have the honour to be,
Sir,
Your obedient servant,
FRANCIS KERMODE,
Director.

PROVINCIAL MUSEUM REPORT

FOR THE YEAR 1914.

Provincial Museum,
Victoria, B.C., December 31st, 1914.

The Honourable H. E. Young, M.D.,
Provincial Secretary, Victoria, B.C.

Sir,—Since the last Annual Report considerable research-work has been carried on in the field, but owing to the financial stringency at the beginning of the year it was deemed advisable to effect economy as far as possible in the administration of the Provincial Museum. A cut of $1,000 was made on the annual maintenance for the year 1914, and again, since the outbreak of the European war, another cut of $1,500 was made. While it is a matter of regret, not being able to avail ourselves of opportunities which from time to time occur, considerable field-work has been carried on and a number of specimens have been secured, with valuable and interesting scientific data.

The Director is pleased to be able to report that since the Public Works Department vacated the temporary building in the rear of the Museum, this building has been handed over to this Department. Although it is not a fire-proof building, it is of great use to us for storage of specimens and study series of natural history, also for laboratories; every available space in the Museum being occupied. Immediately on taking over this annex I arranged to have all the valuable anthropological material which was in storage (at Dr. Newcombe's residence) transferred to this building, where it is now temporarily installed, catalogued, numbered, labelled, and arranged according to tribes. All of this material, which has been collected during the past four years, is of great scientific value to the Province, illustrating the chief points in the common life of the Indians and many of their ceremonial usages, and is now accessible to students of anthropology. The large totem-poles, canoes, etc., are stored in the basement of this temporary building. The collection of bird and mammal skins has also been transferred to this annex, where they are available for study to those who wish to consult them.

Dr. C. F. Newcombe was employed by the Department for a short time during the year to continue anthropological research in regard to the Indians along the Coast. Over one hundred specimens were secured. Mr. J. A. Teit, of Spences Bridge, also carried on the work among the Interior Indians, securing sixty-six specimens. Lists of these specimens are appended to the anthropological reports.

Steps have been taken to revise and add to the botanical collection which for many years has been installed in the Museum, many persons having signified their intention to add to this branch of the Department.

During the year the Director found it impossible to do any field-work, but sent afield, in May, Mr. E. M. Anderson and Mr. C. B. Garrett to carry on the work already started last fall in the Atlin District by myself and assistant. They were very successful on their trip, securing a large number of birds, mammals, and other natural-history specimens, with a vast amount of valuable data. A number of new records for the Province were made.

The matter of obtaining Bare Island (known as Indian Reserve No. 9, Saanich Tribe) to be kept as a permanent bird sanctuary for the preservation of bird-life on this Coast has not yet matured. Mr. Duncan C. Scott, Deputy General Superintendent of Indian Affairs at Ottawa, and Mr. W. E. Ditchburn, the local Commissioner of Indian Affairs, have done a great deal in the way of helping us in this matter and have advised arbitration proceedings. Owing to the existing financial stringency it is deemed advisable to let expropriation proceedings drop for the present, but arrangements have been made with the Indian Department whereby the Provincial Government may put a guard on this island during the nesting season, to look after the preservation of bird-life, but this will not interfere in any way with the Indians who wish to go there to gather camas (commonly called wild onion) for food.

During the year the Department was requested by the Minister of Agriculture to supervise a collection of big-game trophies for the Department of Agriculture, to be exhibited by their Exhibition Branch at the Panama Exposition. These have now all been prepared, and the Museum has loaned through Mr. W. E. Scott, Deputy Minister of Agriculture, several mounted mammals. Taking the collection all through, it will make a very creditable showing of the big game of this Province.

The total number of additions to the Museum collections during 1914 are as follows: Birds, 537; eggs and nests, 110; mammals, 171; botanical, 936; entomological, 2,450; fishes, 15; reptilia (including batrachians), 31; crustaceans, 1; shells, 3; fossils, 10; anthropological, 176.

It was very gratifying to note the interest taken by the school-teachers of the Province who attended the Summer School of Industrial Education held in Victoria in their natural-history studies. At the request of Mr. Deane, of the Education Department, the Director arranged with Dr. C. F. Newcombe to give three lectures in the Provincial Museum on Indian designs and arts. The lectures were well attended and the teachers seemed to take great interest. These lectures were illustrated by charts and drawings prepared by Dr. Newcombe. The Director also gave a lecture on the fauna of the Province, illustrated by lantern-slides, in the George Jay School, which was well attended, and I hope proved instructive to those present. The different classes in connection with this school attended the Museum and were conducted over the collections personally.

Under the present system there is no way of accurately recording the attendance of visitors at the Museum. Only a very small proportion of visitors register their names. During the past year the Director inaugurated a new system whereby the guard in the hall of the Museum checks all parcels, umbrellas, etc., carried by visitors, and also requests that they sign the register; but it must not be forgotten that a great number of visitors are unable to sign, being Orientals, or natives of this Province.

It is proposed during the year 1915 to publish a new check-list of the birds of British Columbia, as it is now some eight or nine years since the last check-list was published. A vast amount of valuable data has been accumulated in regard to the distribution of the birds of the Province, a number of species and subspecies new to the Province having been recorded. Numbers of these specimens have been forwarded to Washington for specific identification. The Provincial Museum collection being only a representative collection of the Province of British Columbia, it is impossible to work out the exact subspecies, not having a representative collection of North America. It is also proposed to compile a preliminary check-list of the fishes, also the Lepidoptera of British Columbia.

During 1915 the Director hopes to be able to do a limited amount of work in the study of marine biology, but the Department is handicapped by not having a suitable vessel to undertake a systematic dredging along the Coast. The proposed work will have to be done at low tide with the aid of a small boat.

The Provincial Museum is indebted to Mr. H. C. Henshaw, Mr. E. Nelson, and Mr. H. C. Oberholser, of the Biological Survey, Department of Agriculture, Washington, D.C., for identification of a collection of bird and mammal skins sent them for examination and comparison; also to the following gentlemen who have generously assisted in the identification of various entomological material: Mr. E. H. Blackmore, of Victoria; Mr. L. W. Swett, of Boston, Mass.; Messrs. Barnes and McDunnough, of Decatur, Ill.; Prefessor Raymond C. Osburn, of Columbia University; Professor H. S. Hine, of Columbia; Dr. L. O. Howard, Messrs. J. C. Crawford and E. A. Schwartz, of the United States National Museum, Washington, D.C.; and Mr. F. Wolley Dod, of Alberta.

Thanks are also due to the following persons for their aid in securing and keeping records of the birds in their migration in this Province: Messrs. J. A. Munro and Allan Brooks, of Okanagan Landing; C. deB. Green, of Masset; Dr. J. E. H. Kelso, of Edgewood, Lower Arrow Lakes; W. R. Carter, of Alberni; A. H. Palmer, Vancouver District; and W. A. Newcombe, in the Lillooet District.

Annexed will be found a complete list of specimens secured during the year.

I have the honour to be,
Sir,
Your obedient servant,

FRANCIS KERMODE,
Director.

REPORT OF E. M. ANDERSON ON ATLIN EXPEDITION, 1914.

Accompanied by an assistant, Mr. C. B. Garrett, we left Victoria on May 29th, via Skagway, Alaska, arriving at Atlin on June 5th. The following day we outfitted, and after a short journey by wagon of about twenty miles, constructed our camp near Wilson Creek at an altitude of 3,000 feet, and situated close to a small lake. Systematic field-work was carried on in various sections of the country until August 19th. During the trip we established five camps—viz., at Wilson Creek, Hot Springs, Pike River, Anderson Bay, and Atlin. We collected diligently from two to three weeks in each respective locality, careful research being made from the level of Atlin Lake to the summit of the snow-capped mountains. Many interesting specimens and valuable data were gathered, while a number of birds, mammals, and insects proved entirely new records for the Province.

The following is a total summary of material collected: Birds, 422; oological specimens, 94; mammals, 153; botanical specimens, 936; entomological, 2,104; fishes, 12; batrachians (frogs), 25.

Before concluding, I beg to tender my thanks to Mr. J. A. Fraser, Government Agent at Atlin, for his kindness in placing the gasolene-launch "Tagish" at my disposal, whereby we were enabled without difficulty to move camp outfit, etc., and explore numerous points and small islands on Atlin Lake. I may also add that the boat greatly facilitated our work, as it was the means whereby we collected some material that otherwise would have escaped our observation, particularly those species of birds which prefer to inhabit the small remote islands during the nesting season. I also wish to thank Messrs. Sydney Smith, D. Holland, T. Marshall, R. Wallace, and Captain McDonald for their valuable assistance, and also a number of residents of Atlin for their information regarding the district and certain species of birds and mammals of northern British Columbia.

Remarks.

Before reporting on the material collected and observed in the Atlin District, I shall endeavour to outline in general, relative to the conditions, etc., with special mention of the main stations at which we collected.

Atlin.

Atlin, the name derived from a "Tahltan" Indian word, meaning "Big Water" (Atlin Lake, so well named), is the chief mining centre in northern British Columbia. The townsite is situated on the east shores of the lake which bears its name. Unfortunately, shortly before our arrival in June, the town was completely devastated by fire, save for the Government Buildings, Royal Hotel, and a few dwellings, including a mill at the southern end of the town. Rebuilding on the burnt area showed great activity, for during our stay in August several substantial frame buildings were nearing completion, including an adequate hotel which will serve to accommodate many residents, and also furnish a resting-place for the tourist travel during the summer season. From reports gathered from private sources, mining on the creeks was carried on to good advantage. In many instances more gold was procured than in many previous years; this fact is attributed to the extensive placer-mining, where hydraulic pressure is operated on several of the creeks in the surrounding mining district. Considerable assessment and development work is also under way on many of the high-grade ores; for example, the famous Engineer mine and the Kirkland group on Taku Arm.

Speaking of the weather conditions, we found them most favourable. The beautiful, long, non-oppressive days, with practically no darkness, and occasional showers, all tended to harmonize with the beautiful surroundings.

Farming is conducted on a small scale close to Atlin. Although plenty of land is available, very little is at present under cultivation. From observations, vegetables seem to thrive the best. During the last week of July we visited a small crop of standing grain; this also adds to the possibilities in regard to agriculture in the north. Little or no collecting was done at Atlin until our return from Pike River on August the 9th, where we remained for ten days. Here we dried and packed our collection for shipment, also collecting daily in the outskirts of the town and adding many interesting specimens not encountered with in the other sections visited.

ATLIN LAKE.

Atlin Lake, altitude 2,220 feet, is a large body of snow and glacial water, almost one hundred miles in length and averaging about five miles in width. The lake is very deep in spots; in fact, in some places the depth is unknown. The shore-line is indented with many bays, a number of points, and dotted with many islands of various sizes. Teresa Island, locally called "Goat Island," is the largest on the lake. It is, roughly speaking, about sixteen miles long and five miles wide across the centre. The highest snow-peak on this island is 3,480 feet above the lake. Fishing on the lake is very good; Arctic grayling and the char, or Great Lake trout, are very plentiful. Whitefish are also plentiful. Perhaps the most remarkable sight is the "Llewellyn Glacier." This enormous field of ice stretches from the southern end of Atlin Lake to the "Taku Inlet," on the coast, covering an area approximately ninety miles long, many parts of which reach thirty miles in width. I had the pleasure of viewing both bases; the size is beyond apprehension.

PIKE RIVER.

Pike River is about twelve miles long, flowing north-west and emptying into Atlin Lake. We camped at an abandoned telegraph-station about half a mile from the mouth and sheltered in a secluded bay. Most of the surrounding country is flat, with a few small lakes, and timbered with willow, poplar, cottonwood, and spruce. Near the mouth of the river grayling are plentiful. Work was carried on here from July 25th to August 8th, three days of which we collected at Anderson Bay, about four miles distant by water from the Telegraph Cabin. The small inland lakes near Moose River revealed some desirable specimens of birds and mammals. The mountains were explored, but produced nothing of importance, save recording two nests of Golden eagles. The Pika Slide was searched, but none were taken. In all probability they were buried under a snowslide which occurred the day previous to our visit.

HOT SPRINGS.

The country is wooded with spruce and pine, and considerable willow and cottonwood in the bottom lands. Several small lakes are to be found close to the base of a range of mountains running north and south. The Hot Springs are located about a third of a mile from Warm Bay, Atlin Lake, where Mr. Joe Housel has erected a bath-house which is used to good advantage by passers-by. We camped on the shores of Atlin Lake from July 1st to 28th, moving by boat to Pike River.

WILSON CREEK.

A fork of O'Donnell River, about eight miles long. The country on both sides is mountainous, excepting the head, where open willow-brush is found on the higher elevations. Willow ptarmigan are found commonly on the table-lands during the summer, breeding in suitable places, usually near water. We camped at the base of Gopher Dam Mountain, close to a small lake; and collected in the surrounding district from June 7th to July 1st, securing many valuable specimens.

BIRDS COLLECTED AND OBSERVED IN THE ATLIN DISTRICT, 1914.

HOLBŒL'S GREBE (*Colymbus holbœllii*, Reinhardt).

On July 12th a pair with five downy young were observed close to the lake-shore at Warm Bay. Three were seen at Surprise Lake on August 16th. Although we collected at several small lakes, etc., the birds were found scarce during the nesting season. It is a common bird during the month of September on Lake Atlin.

HORNED GREBE (*Colymbus auritus*, Linnæus).

A single bird was seen on a small lake at Atlin on August 15th. It was common at Atlin Lake in September, 1913.

LOON, GREAT NORTHERN DIVER (*Gavia immer*, Brunnich).

A few birds frequented Warm Bay, Atlin Lake, during July. Several were seen near Pike River early in August.

Black-throated Loon (*Gavia arctica*, Linnæus).

Over a dozen seen throughout the summer on Atlin and the smaller lakes. We found it more plentiful than *Gavia immer*. A pair were found breeding at Camp Lake, Wilson Creek, on June 15th. I am inclined to think that some of the birds observed at a distance may have been the yellow-billed loon (*Gavia adamsii*, Gray). However, since none were shot, it is impossible to list it with certainty.

Herring Gull (*Larus argentatus*, Pontopidian).

While en route to Atlin on June 4th a number of birds were seen feeding on small lakes at Log Cabin, Lake Bennett. We found several pairs nesting on a small rocky island at Atlin Lake. Fresh eggs were taken on July 8th. Seven adult birds were shot in order to ascertain the species with certainty. The eggs, two or three in number, measure 2 x 2.75, of an olive-brownish colour, spotted and blotched with various shades of brown. The eggs are indistinguishable from *Larus glauscens*. The nests were all very crude, being composed of little or no grass at all. Two eggs were laid in a slight depression in the bare ground. The nest is by no means as elaborate as the glaucous-winged gull, which breeds commonly on the Pacific Coast.

California Gull (*Larus californicus*, Lawrence).

An adult female was taken at Warm Bay, Atlin Lake. Two others were seen at the same locality three days later. (Idt. Oberholser.)

Short-billed Gull (*Larus brachyrhynchus*, Rich.).

Three adults were collected at Warm Bay, Atlin Lake, on July 11th, and an immature on July 15th at Hot Springs. An adult and young of the year were taken at Pike River on August 8th. It is quite evident that the birds breed in the vicinity, as several adult birds were seen during the month of July. (Idt. Oberholser.)

Bonaparte's Gull (*Larus philadelphia*, Ord.).

A single specimen was shot at Camp Lake, Wilson Creek, on June 10th. On July 3rd two adults were collected on a small lake near Hot Springs; also two downy young were taken on the lake-shore. I should judge from the size of the young that fresh eggs could be taken about June 1st. Two young with first plumage were shot at Pike River on August 6th. On approaching the nest it was amusing to watch the parent birds fly a short distance and alight on a tree-top and utter cries of warning for the young to conceal themselves in the grasses or swim away to safety: usually they fled to the opposite side of the lake, returning only when assured of being well out of the danger zone. This species was seldom seen on Atlin Lake. It preferred the small inland lakes, with grassy shores. Only one nest was found at the edge of the lake. It was situated in a small willow-bush, about 5 feet from the ground, composed of sticks and lined with grasses. It was not found breeding in colonies, as only one or two pairs were nesting on several of the small lakes visited close to Hot Springs. By no means a common breeder in the district we traversed.

Arctic Tern (*Sterna paradisæa*, Brunnich).

Common nearly everywhere throughout the district. Birds were taken at Wilson Creek from June 9th to July 1st. Also a number at Hot Springs and Pike River in July and August. They breed at the mouth of O'Donnel River. Young were hatched early in July. Twenty-one specimens were collected, varying in measurements. (Idt. Oberholser.)

Merganser (*Mergus americanus*, Cassin).

A female with seven downy young were found feeding close to the shore at Pike River on July 27th. All the young were taken; the female escaped badly wounded. No others were seen.

Mallard (*Anas platyrhynchos*, Linnæus).

A single bird was flushed on Summit Lake, Wilson Creek, on June 25th. Female shot at Pike River on July 30th. A young male collected at a swamp near Anderson Bay, Atlin Lake, on August 5th. A pair were found with young on a small lake on the Indian reserve at Atlin. Three adults collected at Atlin on August 12th. Breeds commonly at the north end of Atlin Lake.

AMERICAN WIDGEON (*Mareca americana*, Gmelin).

One specimen found dead at Indian village, Atlin, on June 6th. No others observed. Reported common in the fall by D. Holland.

GREEN-WINGED TEAL (*Nettion carolinense*, Gmelin).

Two males taken at Atlin on August 10th and 14th. Found a few in company with mallard on August 15th at Atlin.

PINTAIL (*Dafila acuta*, Linnæus).

Male and female collected at Atlin on August 12th. Found them feeding with mallard in a swamp at Atlin on August 12th. A common bird in August.

CANVAS-BACK (*Marila valisineria*, Wilson).

A single female observed from shore at Warm Bay, Hot Springs, on July 12th. Its identity was unmistakable, as it was seen quite close in company with five white-winged scoters. No others seen throughout the summer.

BARROW'S GOLDEN-EYE (*Clangula islandica*, Gmelin).

Two pair were seen on Camp Lake, Wilson Creek, where an adult male and female were shot on June 9th. An additional female was collected at Warm Bay, Hot Springs, on July 3rd. Two females were seen on a small lake near Hot Springs on July 5th. Both birds were in company with five downy young, where we observed the duck carrying the young on their backs and swimming well out of range of our gunshot.

WHITE-WINGED SCOTER (*Oidemia deglandi*, Bonaparte).

Very abundant on Atlin Lake during the latter part of July and early August. Two adults were shot at Pike River Bay on July 28th. Several large flocks of about two hundred were seen on Atlin Lake close to Pike River during August. This species outnumbered all the other ducks during the early fall.

SURF SCOTER (*Oidemia perpiscillata*, Linnæus).

A female shot in a flock of white-winged scoters at Pike River on July 29th. Several were seen on the lake during August.

NORTHERN PHALAROPE (*Lobipes lobatus*, Linnæus).

While en route on the train a flock of about thirty were seen at Lake Bennett on August 20th. Although none were collected, it is probable that this is the species referred to.

LEAST SANDPIPER (*Pisobia minutilla*, Vieillot).

On July 27th a small flock of about ten birds were seen at Atlin, of which one was taken. Another specimen was shot at Pike River Bay on July 29th. The latter was in company with semipalmated plover. (Idt. Oberholser.)

GREATER YELLOW-LEGS (*Totanus melanoleucus*, Gmelin).

A single bird taken for this species was seen at Camp Lake, Wilson Creek, on June 10th.

YELLOW-LEGS (*Totanus flavipes*, Gmelin).

One specimen collected at Hot Springs on July 3rd. Another killed at Blue Canyon on August 14th. These were the only birds seen.

SPOTTED SANDPIPER (*Actitis macularia*).

Breeds commonly at Atlin Lake. Most all of the small islands visited on the lake were inhabited by a pair or more. Hard-set eggs were taken on Middle Island on July 8th. Both downy young and adults were secured in the same locality on the same date. This was the only sandpiper found breeding. Other species did not appear from the north until about the beginning of August. Owing to our departure on August 19th, many of the waders known to occur missed our observation.

SEMIPALMATED PLOVER (*Ægialitus semipalmata*, Bonaparte).

Two males collected at the mouth of O'Donnel River on July 5th. A young male with trace of down still adhering to its neck was taken at Pike River on July 30th. Four adults were seen at Pike River on July 27th. Although no nest was found, it certainly breeds in the vicinity.

Fleming's Grouse (*Dendragapus obscurus flemingi*, Taverner).

Found it breeding in the foot-hills of Gopher Dam Mountain, near Wilson Creek, in June. Birds were taken June 14th and 19th. Others were shot at Burdette Creek on July 15th. New record for Provincial Museum. (Idt. Oberholser.)

Alaska Spruce Partridge (*Canachites canadensis osgoodi*, Bishop).

By far the most abundant of all the grouse family. A large series of birds were taken during June, July, and the early part of August. A nest containing seven hard-set eggs was found on June 23rd at Wilson Creek. On June 27th a nest with a single egg containing a chick was found at Camp Lake. Both nests were situated on the ground at the foot of a small spruce-tree of about 10 inches in diameter, and composed of pine and spruce needles, and lined scantily with a few breast-feathers of the female bird. The breeding-ground is presumably where the jack-pine and spruce belt meet, at an altitude of from 3,000 to 4,000 feet. The eggs are of a dark-cream buffy colour, spotted profusely with light brown; size, 1.25 x 1.75. The flying young were seen on July 8th at the Middle Islands; one specimen secured.

Canada Ruffed Grouse (*Bonasa umbellus togata*, Linnæus).

Two males were collected at Hot Springs on July 16th and 19th. Two females were seen with six flying young on the same dates. We did not find it common, only flushing an occasional bird while travelling through the bottom lands. Most of the residents of Atlin are misinformed regarding the identity of this grouse. I was indeed surprised to learn that very few settlers can distinguish the ruffed grouse (commonly called willow grouse) with certainty. It is quite evident that the female spruce grouse (fool-hen) is mistaken for the above species.

Willow Ptarmigan (*Lagopus lagopus*, Linnæus).

A fine series in full breeding dress was taken in June at Wilson Creek, from 3,000 to 4,500 feet. Eggs and downy young were collected at O'Donnel Creek, near the summit, on June 26th. On August 15th ten adults and seven flying young were taken at Blue Canyon, near Slate Creek. The birds deposit their eggs early in June, laying from seven to ten eggs, of a buffy brownish colour, marked with dark umber and brownish spots; size, 1.22 x 1.65. This species is the common form of the north and furnishes the inhabitants with food throughout the winter months. I am told that thousands are killed annually quite close to Atlin. A series of skins submitted to Mr. H. C. Oberholser were identified, *Lagopus lagopus albus*.

Rock Ptarmigan (*Lagopus rupestris rupestris*, Gmelin).

We did not find it common. Two males were taken on the top of Gopher Dam Mountain, Wilson Creek, one on June 26th and a second on July 1st. Like the white-tailed ptarmigan (*Lagopus leucurus leucurus*, Swainson), they were found breeding only in the higher altitudes, where hardly any timber exists, save a few stunted trees, and the ground is covered with false heather and frozen snow.

White-tailed Ptarmigan (*Lagopus leucurus leucurus*, Swainson).

One seen on June 15th at Gopher Dam Mountain, Wilson Creek, at an altitude of about 5,000 feet. No others seen. Dan Holland (guide) reports that during the winter months large flocks of the three species congregate on nearly all the creeks close to Atlin. (Idt. Oberholser.)

Goshawk (*Astur atricapillus atricapillus*, Wilson).

Common everywhere throughout the district. Adults, immature, and young were taken at Hot Springs on July 4th to 16th, and Pike River on August 3rd. This hawk is very destructive to the gallinaceous birds of the district. I witnessed one in pursuit of a blue grouse while on the wing, but the grouse fortunately escaped to cover just in time to save its life from destruction. (Idt. Oberholser.)

Alaskan Red-tail (*Buteo borealis alascensis*, Grinnell).

One specimen taken at Blue Canyon on August 15th. Several were seen on the wing in various sections of the country. Not a common bird. New record for Provincial Museum. (Idt. Oberholser.)

SWAINSON'S HAWK (*Buteo swainsoni*, Bonaparte).

A fine melanistic female was shot at Camp Lake, Wilson Creek, on June 19th. The pair were nesting on the opposite side of the lake to our camp. Unfortunately we did not secure the male, as he escaped badly wounded and was never seen again. A pair was observed on the wing at Hot Springs on July 12th.

GOLDEN EAGLE (*Aquila chrysætos*, Linnæus).

A pair was observed in mid-air at Wilson Creek on June 15th. Two nests were found on Pike Mountain on August 15th. The birds with their young were observed soaring high above the nests. Both the nests were accessible, being situated on shelves of a precipitous cliff near the top of a mountain. The eggs were probably deposited about the middle of May.

NORTHERN BALD EAGLE (*Haliæetus leucocephalus alascanus*, Townsend).

Adult male and downy young collected on July 4th close to a small inland lake near Hot Springs. The nest was a large structure of sticks, roots, bark, etc., placed on the top of a green spruce-tree about 45 feet from the ground. The nest contained only one young, two being the usual number of eggs laid. Not a common bird. More golden eagles were seen during our stay.

PIGEON HAWK (*Falco columbarius columbarius*, Linnæus).

A fine adult taken at Atlin on August 13th. One seen at Wilson Creek in June. Scarce throughout the district. (Idt. Oberholser.)

SPARROW HAWK (*Falco sparverius sparverius*, Linnæus).

Fairly common. Several seen along the roadside between Atlin and Wilson Creek in June, where one specimen was taken on June 21st. An adult female was taken at Pike River on August 7th. The bird frequented our camp occasionally, and was at last shot while feeding on grasshoppers. It proved a fine specimen. (Idt. Oberholser.)

OSPREY (*Pandion haliætus carolinensis*, Gmelin).

A pair were found breeding at the mouth of O'Donnel River on June 20th. Captain McDonald reported that a pair were also breeding at Taku. Not a common bird in the Atlin District.

NORTH-WEST HORNED OWL (*Bubo virginianus lagophonus*, Oberholser.)

Very abundant. Three young birds of the year were taken at Hot Springs on July 6th, 15th, and 19th. Over a dozen horned owls were seen at Hot Springs and Pike River, and it is probable they are all the same variety. (Idt. Oberholser.)

HAWK OWL (*Surnia ulula caparoch*, Müller).

Tolerably abundant nearly everywhere. Two adults and three downy young were taken at Wilson Creek on June 14th, A female was also shot at Pike River on July 28th.

WESTERN BELTED KINGFISHER (*Streptoceryle alcyon caurina*, Grinnell).

By no means a common bird. One specimen was observed at Camp Lake, Wilson Creek, on June 7th. A pair frequented our camp at Anderson Bay, Atlin Lake, where they appeared daily from August 5th to 8th.

ALASKA THREE-TOED WOODPECKER (*Picoides americanus fasciatus*, Baird).

Fairly common. Four specimens collected in the burnt area at Wilson Creek from June 9th to 22nd. Two males and a female were taken at Hot Springs on July 10th to 15th.

NORTHERN FLICKER (*Colaptes auratus luteus*, Bangs).

Fairly common. One specimen observed at McKee Creek on June 6th. A single bird was occasionally seen at Wilson Creek from June 6th to 15th. A fine adult male was shot at Burdette Creek on June 21st. On July 25th a nest was found at Hot Springs containing six flying young. The nest was placed in a hole in a stump about 10 feet from the ground. Only one young was captured, the remainder deserting the nest while we climbed the dead tree-trunk. Others were frequently seen and heard at Pike River in August.

NIGHTHAWK (*Chordeiles virginianus virginianus*, Gmelin).

Fairly common. Birds with complete sets of eggs collected at Hot Springs on July 3rd and 7th. Each nest contained two eggs, deposited on the bare ground. In colour the eggs are greyish white, spotted and faintly blotched with vandyke brown and lavender markings; size, 0.85 x 1.15. (Idt. Oberholser.)

RUFOUS HUMMINGBIRD (*Selasphorus rufus*, Gmelin).

Very scarce throughout the district. On July 24th a pair was observed at Atlin. A single bird was seen on the wing moving southward at Pike River on August 6th. I observed the Atlin birds at close range inside the city on one of the main streets, therefore I can vouch for their identification.

SAY'S PHŒBE (*Saynoris saya*, Bonaparte).

Found the bird common. Two were taken at Wilson Creek on June 18th. An adult and young with first plumage were collected at Atlin on August 11th. On July 8th a pair were found feeding young on Middle Island, Atlin Lake. The nest was placed in a crevice of a steep ledge overhanging the water.

OLIVE-SIDED FLYCATCHER (*Nuttallornis borealis*, Swainson).

This species was found in small numbers at Wilson Creek throughout the month of June, where nest and eggs and six birds were obtained. A pair were shot at Hot Springs on July 24th. The birds inhabited the timbered mountain sections, usually at an elevation of about 3,000 feet. The nest was built in a live spruce-tree, saddled and well hidden, about 1 foot from the end of the bough and 15 feet from the ground, composed of small dead spruce-sticks interwoven with dark-brown dried moss, and scantily lined with fine rootlets. The eggs, four in number, were perfectly fresh, of a dull-cream colour, spotted and blotched with various shades of brown and lilac, chiefly on the larger end; averaging 0.62 x 0.80. Both the female and nest were obtained on June 21st at Wilson Creek. The eggs are very rare in collections. In the catalogue of Canadian Birds by John and James Macoun, published in 1909, Mr. W. Raine records the nest collected by him at Long Lake, Manitoba, as resembling a large wood pewee's nest; such is not the case with the British Columbia bird, as its nest is of an entirely different character.

WESTERN WOOD PEWEE (*Myiochanes richardsoni richardsoni*, Swainson).

The commonest flycatcher throughout the district. In June we obtained several specimens at Wilson Creek and three at Hot Springs on July 10th. The following day the nest was visited with a camera, but we found the young birds had flown; however, we photographed the abandoned nest to good advantage. The nest was placed in the crotch of a defoliated almost dead willow-tree, situated about 6 feet from the ground, and was composed of dried grasses, rotten wood, and coated sparingly with very little lichen, the inside lined with cottonwood down. This nest was rather on the small side, measuring 2¾ inches across the top and about 2 inches deep. (Idt. Oberholser.)

YELLOW-BELLIED FLYCATCHER (*Empidonax flaviventris*, Baird).

An adult male was obtained at Pike River, Atlin, on August 3rd. This was the only one seen, and it was shot in the timbered woods in company with *Empidonax hammondi*. New record for Provincial Museum. (Idt. Oberholser.)

ALDER FLYCATCHER (*Empidonax traillii alnorum*, Brewster).

Two adults and one flying young were taken at Atlin on July 24th. Three others were seen in the same locality. (Idt. Oberholser.)

HAMMOND'S FLYCATCHER (*Empidonax hammondi*, Baird).

One specimen collected at Wilson Creek on June 29th, and also one at Pike River on August 3rd. (Idt. Oberholser.)

WRIGHT'S FLYCATCHER (*Empidonax wrightii*, Baird).

On June 21st a male and female were obtained at Wilson Creek. Another taken about the same spot on June 30th.

NOTE.—None of the *Empidonax* were plentiful throughout the districts we travelled. *Empidonax traillii alnorum* (Brewster) seemed to be the prevailing form which was met with more frequently.

PALLID HORNED LARK (*Otocoris alpestris arcticola*, Oberholser).

Twelve birds which were undoubtedly breeding were collected on the summit of Gopher Dam Mountain, Wilson Creek; all were taken between June 24th and 30th, inclusive. Although there is a remarkable variation in the specimens taken, Mr. Oberholser referred them all to his own subspecies.

CANADA JAY (*Perisoreus canadensis*, Linnæus).

Common everywhere. A good series of birds were collected in June at Wilson Creek, and Hot Springs and Pike River in July and August. The young of first plumage were obtained on July 19th at Wilson Creek. (Idt. Oberholser.)

NORTHERN RAVEN (*Corvus corax principalis*, Ridgway).

None were seen or heard during the nesting season. Two birds flew past our camp at Hot Springs on July 20th. They also appeared a day or so afterwards feeding on the lake-shore. We failed to get a shot at them, as they took flight before we were within range of gunshot. Several were seen at Pike River on August 2nd. By the middle of August we noticed them flocking together. It was a common occurrence to see as many as fifty to one hundred raven in a flock, flying high in the air to some distant feeding-ground.

RUSTY BLACKBIRD (*Euphagus carolinus*, Müller).

We did not encounter this species until the 22nd July, when we found it common at a small inland lake about two miles from Hot Springs. A nice series of adults and young were obtained in various phases of plumage. A few old nests were discovered near the edge of the lake. They were situated in small spruce-trees, close to the trunk, from 2 to 5 feet from the ground. Flocks of a dozen or more were observed in the streets of Atlin in August.

ALASKAN PINE GROSBEAK (*Pinocola enucleator alascensis*, Ridgway).

Although we kept a sharp look-out for these birds, we failed to find any. Mr. Dan Holland, our guide, reported on seeing five at the mouth of O'Donnel on July 5th. He failed to get a shot at them, as they flew to the opposite side of the river, which he was unable to cross. He reports them in the winter as a common resident, where large flocks are often seen in Atlin.

PINE SISKIN (*Spinus pinus*, Wilson).

Common in the wooded sections. Occasional flocks were seen in June and July at Wilson Creek and Hot Springs. Adults and young were taken at Pike River on August 2nd.

WESTERN SAVANNA SPARROW (*Passerculus sandwichensis alaudinus*, Bonaparte).

Common throughout the summer. Adults were obtained in June at Wilson Creek. Two pair were breeding at the edge of a small lake near Wilson Creek. Incidentally, when looking for their nests, we stumbled on two of the Western tree sparrow, both of which contained five fresh eggs. Young of first plumage were taken at Pike River and Atlin in August, where they were quite common in the grassy country. (Idt. Oberholser.)

GAMBEL'S SPARROW (*Zonotrichia leucophrys gambeli*, Nuttal).

Tolerably common. We found it breeding at Wilson Creek in June. Two nests were found, one on June 10th and another on June 12th, at Camp Lake. Both nests contained five fresh eggs of a dull-greenish white and finely spotted with various shades of brown, one set almost obscuring the ground colour; average size, 0.65 x 0.90. Young of first plumage were taken at Pike River in early August.

GOLDEN-CROWNED SPARROW (*Zonotrichia coronata*, Pallas).

We found it very scarce. An adult male was taken at Wilson Creek on June 30th and a female at Hot Springs on July 2nd. Another was seen at Burdette Creek, but we failed to get a shot at it.

WESTERN TREE SPARROW (*Spizella monticola ochracea*, Brewster).

Very abundant in the mountain sections, more frequently met with about willow-swamps from 3,000 to 4,500 feet. We secured a number of fine specimens at Wilson Creek in June. Two sets of eggs were collected at Camp Lake, Wilson Creek, on June 11th. The birds nested in a stunted willow-swamp at the margin of a small lake. Both nests were well concealed in a clump of willow-brush, situated about a foot above the ground, composed of grass fibre and dried grasses interwoven with a little moss, and snugly lined with ptarmigan-feathers. Each nest contained five fresh eggs af a bluish-green colour, spotted and blotched with shades of reddish brown, averaging 0.56 x 0.75 in size. (Idt. Oberholser.)

WESTERN CHIPPING SPARROW (*Spizella arizonae socialis*, Coues).

Abundant everywhere throughout the district. A nest just about ready for depositing eggs was found on the day of our arrival in Atlin on June 6th. Adults were taken at Wilson Creek in June. In August it was common at Pike River, where both adults and young of the first plumage were obtained. (Idt. Oberholser.)

SLATE-COLOURED JUNCO (*Junco hyemalis hyemalis*, Linnæus).

Very common throughout the summer. A large series of adults and young were secured in the different sections of the country visited. Five sets of eggs were taken in June and early July at Wilson Creek and Hot Springs. The eggs, four or five in number, vary considerably in size, markings, and colour. Four sets were pale greenish and one almost cream colour, spotted finely with various shades of brown, averaging in size 0.55 x 0.75. (Idt. Oberholser.)

LINCOLN'S SPARROW (*Melospiza lincolnii*, Audubon).

Apparently not common. Male and female were obtained at Hot Springs on July 3rd. They were shot in a swamp where they were undoubtedly breeding. An adult male was collected in Atlin on August 14th, being shot in a marsh, associated with Western Savanna sparrows. (Idt. Oberholser.)

CLIFF SWALLOW (*Pterochelidon lunifrons lunifrons*, Say).

Abundant summer resident. Large numbers were found building in the town of Atlin. Fresh eggs were taken on June 6th. Adults and young were obtained in Atlin on August 8th.

BARN SWALLOW (*Hirundo erythrogaster erythrogaster*, Boddært).

Common at Pike River and Atlin. Several were found in barns in Atlin and left undisturbed. A pair were nesting in a small flat car which is used for conveying passengers over a portage from Taku to Atlin Lake, a distance of about two miles. The birds fly unconcerned to and fro from the nest while the train is en route. Mr. Sullivan, the engineer of the train, informed me that the birds nest in the same spot yearly, where they raise their young unmolested under such novel conditions. A set of five fresh eggs were obtained at Atlin on June 6th. A nest was found at Pike River on August 2nd with five young. The young were ready to fly on August 8th. (Idt. Oberholser.)

NORTHERN VIOLET-GREEN SWALLOW (*Tachycineta thalassina lepida*, Mearns).

An abundant summer resident. Adults and young taken at Atlin on June 24th. During August a number of the three species were starting to move southward. They were first noticed at Pike River on August 7th. (Idt. Oberholser.)

BOHEMIAN WAXWING (*Bombycilla garulla*, Linnæus).

A common resident. Very abundant at Hot Springs and Atlin. Adults were collected in July at Hot Springs and Middle Islands. We were successful in obtaining four sets of eggs on July 8th on a small island in Lake Atlin. The nests were placed in small spruce-trees, situated from 10 to 15 feet from the ground. The structure is rather a bulky affair, composed of dry pine and spruce sticks, interwoven with dried grasses, cottonwood down, intermingled with a little fur of the varying hare. Two nests contained five eggs, one four, and the other two, all of which were strictly fresh. The average measured 0.100 x 0.75, of a bluish-grey colour, spotted with black, and streaked finely with faint purplish markings. Although the eggs closely resemble the cedar waxwing's, the nests are quite distinguishable from each other, both in size and structure.

ROCKY MOUNTAIN ORANGE-CROWNED WARBLER (*Vermivora celata orestera*, Oberholser).

Only one seen and shot at Pike River on August 2nd, which proved to be a worn male. (Idt. Oberholser.)

ALASKA YELLOW WARBLER (*Dendroica æstiva rubiginosa*, Pallas).

A common summer resident. A pair were found breeding at Wilson Creek on June 15th. Adults and young were taken at Atlin on July 23rd. On June 6th three nests were found under construction in small thick willows about 5 feet high, and located in the centre of the bushes. The nests were larger and more elaborate than the California yellow warbler's procured in the Okanagan in the summer of 1913. We observed more birds in the city limits of Atlin than any other section of the country. They seemed to prefer the more settled districts in preference to the wilderness. (Idt. Oberholser.)

PIPIT (*Anthus rubescens*, Turnstall).

About a dozen were observed on a grassy plateau at the summit of Gopher Dam Mountain, Wilson Creek, where two birds were obtained on June 26th and one on June 29th. The birds taken were in fine breeding plumage. It was common in September at Atlin the year previous; large flocks were observed daily migrating south.

DIPPER (*Cinclus mexicanus unicolor*, Bonaparte).

It was not until August 17th that a single bird was observed at Spruce Creek Falls. No others were seen, although it is said to occur on most of the creeks, but I failed to procure any.

LONG-TAILED CHICKADEE (*Penthestes atricipillus septentrionalis*, Harris).

Fairly common at Pike River in August. Birds were collected at Wilson Creek in June and at Pike River in August. (Idt. Oberholser.)

COLUMBIAN CHICKADEE (*Penthestes hudsonicus columbianus*, Rhoads).

Abundant everywhere. A series of adults and juveniles were obtained throughout the summer. Common at Pike River in August, where they were found in flocks. (Idt. Oberholser.)

SITKA KINGLET (*Regulus calendula grinnelli*, Palmer).

Rather uncommon. A few pair were observed at Wilson Creek in June. Four specimens were obtained near Camp Lake in June. Two adults and one young of the year were collected at Pike River on August 3rd. All these skins were submitted to Mr. Oberholser, who classed them all under this subspecies.

BLACK-POLL WARBLER (*Dendroica striata*, Forster).

Twelve specimens were obtained, comprising six males, three females, and three young of the year. Three were taken at Wilson Creek on June 19th to 30th; three on Middle Islands, Lake Atlin, on July 8th; two at Hot Springs on July 17th and 19th; and four at Pike River on July 29th and August 2nd. About twenty birds were observed during the summer. In August it was noticed with *Dendroica coronata hooveri*, moving in a southerly direction. New record for Provincial Museum. (Idt. Oberholser.)

PILEOLATED WARBLER (*Wilsonia pusilla pileolata*, Pallas).

Abundant summer resident. It preferred breeding in the mountainous sections of the country at an elevation of about 3,000 feet. It was common at Wilson Creek in June, where a few were obtained. Birds were collected at Hot Springs in July and at Pike River in August. A nestling was taken at Hot Springs on July 16th. In comparing the skins with specimens from the Coast, I find they are much brighter in colour, the orange being more pronounced. (Idt. Oberholser.)

TOWNSEND'S SOLITAIRE (*Myadestes townsendi*, Audubon).

Not common. A male and female were collected at Wilson Creek on June 20th, also a mottled, flying young at Hot Springs on July 19th. A pair were found breeding at Wilson Creek on July 17th. The female was shot, also the nest and eggs taken. The nest was situated in a hole on the side of a low clay bank of a road-cut, and was constructed loosely with small sticks, rootlets, bark strippings, a few dead leaves, and lined with dried grasses. The eggs, three in number, were perfectly fresh, of a dull-whitish colour, finely spotted and marked with shades of reddish brown and a little lavander; size, 0.73 x 00.92.

Gray-cheeked Thrush (*Hylocichla aliciæ aliciæ*, Baird).

An adult male was taken at Wilson Creek on June 13th. At Pike River on August 3rd I shot a large thrush in the thick bushes, but although a careful search was made I failed to find it. It was undoubtedly this species. No others were observed. New record for Provincial Museum. (Idt. Oberholser.)

Olive-backed Thrush (*Hylocichla ustulata swainsonii*, Cabanis).

At Hot Springs on July 13th I flushed a female from the nest, and immediately shot it. The nest was placed in a spruce-tree, close to the tree-trunk, about 4 feet from the ground, and composed of rootlets, moss grasses, a few leaves, and lined with dried grasses interwoven with moose-hair. The eggs, three in number, were fresh, of a bluish-green colour, spotted and blotched with lilac-brown markings, mostly at the larger end; size, 0.70 x 0.90. An occasional bird was heard towards evening in the dark woods during July close to Hot Springs. (Idt. Oberholser.)

Sierra Hermit Thrush (*Hylocichla guttata sequoiensis*, Belding).

An adult male was taken at Wilson Creek on June 13th. One female was shot at the same locality on June 28th. All the thrush were found scarce in the district we collected in. (Idt. Oberholser.)

Western Robin (*Planesticus migratorius caurinus*, Grinnell).

Fairly common. Birds, nest, and eggs were taken on June 6th at Atlin. Four nestlings were found at Hot Springs on July 17th; only one was taken. Several nests were found in June and left undisturbed.

Mountain Bluebird (*Sialia carrucoides*, Bechstein).

Common at Atlin and O'Donnel Creek, where a few pair bred. Four adults were collected at Wilson Creek, two males on June 17th and a male and a female on June 30th. Two nests were found at Atlin in June in buildings, containing eggs, none of which were taken, as they were hard-set.

SUPPLEMENT TO THE BIRDS PUBLISHED IN THE ANNUAL REPORT, 1913.

Errata.

Page 10. Belted Kingfisher (*Ceryle alcyon*, Linnæus), read Western Belted Kingfisher (*Steptoceryle alcyon caurina*, Grinnell.)

Page 10. Northern Hairy Woodpecker (*Dryobates villosus leucomelas*, Bodd.). Mr. H. E. Oberholser examined five skins which he labelled Rocky Mountain Hairy Woodpecker (*Dryobates villosus monticola*, Anthony). *Dryobates villosus hyloscopus*, Cab. & Heine; none were taken, all are *monticola*.

Page 11. Traill's Flycatcher (*Empidonax traillii traillii*, Audubon), read Alder Flycatcher (*Empidonax trailli alnorum*, Brewster).

Page 12. Cowbird (*Molothrus ater ater*, Bodd.), read *Molothrus ater artemisiæ*. (Idt. Oberholser.)

Page 12. Western Evening Grosbeak (*Hesperiphona verpertina montana*, Ridg.), read Evening Grosbeak (*Hesperiphona vespertina vespertina*, W. Copp). (Idt. Oberholser.)

Page 14. Alaska Yellow Warbler (*Dendroica æstiva rubiginosa*, Ridgway), read California Yellow Warbler (*Dendroica æstiva brewsteri*). (Idt. Oberholser.)

Page 14. Lutescent Warbler (*Vermivora celata lutescens*, Ridgway), read Rocky Mountain Orange-crowned Warbler (*Vermivora celata orestera*, Ober.). (Idt. Oberholser.)

Page 15. Rocky Mountain Nuthatch (*Sitta carolinensis nelsoni*, Mearns), read Slender-billed Nuthatch (*Sitta carolinensis aculeata*). (Idt. Oberholser.)

Page 15. Hudsonian Chickadee (*Penthestes hudsonicus hudsonicus*, J. R. Forster). The data applies to *Penthestes gambeli gambeli*, Ridgway.

Page 15. Ruby-crowned Kinglet (*Regalus calendula calendula*, Linnæus), read Sitka Kinglet (*Regalus calendula grinnelli*, Ridgway). (Idt. Oberholser.)

Page 16. Audubon's Hermit Thrush (*Hylocichla guttata auduboni*, Baird), read *Hylocichla ustulata swainsoni* Cabanis.

Page 16. Robin (*Planesticus migratorius migratorius*, Linnæus). All birds taken were *Planesticus migratorius caurina*, Grinnell. (Idt. Oberholser.)

Page 16. Northern Varied Thrush (*Ixoreus nævius meruloides*, Swainson). All the birds taken were *Ixoreus nævius*, Gmelin.

Page 20. Sooty Grouse (*Dendragapus obscurus fuliginosa*, Ridgway), read *Dendragapus obscurus flemingi*, Taverna. (Idt. Oberholser.)

Page 20. Gray Ruffed Grouse (*Bonasa umbellus umbelloides*, Dougl.), read Canada Ruffed Grouse (*Bonasa umbellus togata*, Linnæus). (Idt. Oberholser.)

Page 20. Desert Sparrow Hawk (*Falco sparverius phalæna*, Less.), read Sparrow Hawk (*Falco sparverius*, Linnæus). (Idt. Oberholser.)

Page 20. Belted Kingfisher (*Ceryle alcyon*, Linnæus), read Western Belted Kingfisher (*Steptoceryle alcyon caurina*, Grinnell).

Page 20. Alpine Three-toed Woodpecker (*Picoides americanus dorsalis*, Baird), read Alaska Three-toed Woodpecker (*Picoides americanus fasciatus*, Baird). (Idt. Oberholser.)

Page 20. Alaska Jay (*Perisoreus canadensis fumifrons*, Ridgway), read Canada Jay (*Perisoreus canadensis canadensis*, Linnæus). (Idt. Oberholser.)

Page 21. North-west Crow (*Corvus caurinus*, Baird), read Northern Raven (*Corvus corax principalis*, Ridgway). A flock of ravens were mistaken for crows at long range. No crows occur in Atlin.

Page 21. Audubon's Warbler (*Dendroica auduboni auduboni*, Townsend), read Alaska Myrtle Warbler (*Dendroica coronata hooveri*, McGregor).

Page 21. Hudsonian Chickadee (*Penthestes hudsonicus hudsonicus*, J. H. Foster), read Columbia Chickadee (*Penthestes Hudsonicus columbianus*, Rhoads). (Idt. Oberholser.)

..... Interior Marsh Wren (*Cistothorus palustris plesius*, Oberholser). This subspecies should be added to the Okanagan list of birds. We found it common at Vaseaux Lake on May 25th. (Idt. Oberholser.)

MAMMALS COLLECTED IN ATLIN DISTRICT, 1914.

By E. M. Anderson.

(Identified by the Biological Survey of Washington, D.C.)

Hudson Bay Chicaree, Squirrel (*Sciurus hudsonicus hudsonicus*, Erxleben).

Common everywhere in suitable places. Specimens taken in June and July at the various points collected at. Twenty-eight preserved.

Grey-headed Chipmunk (*Eutamias caniceps*, Osgood).

Eighteen specimens were secured. It was not found commonly in the district. Both adults and young were taken at Wilson Creek in June, at Hot Springs in July, and at Pike River in August. Seventeen preserved.

Osgood's Spermophile (*Citellus plesius*, Osgood).

Abundant at Wilson Creek and Surprise Lake. Taken on June 9th to 30th. Fourteen preserved.

HOARY MARMOT, WOODCHUCK (*Marmota caligata*, Eschsch.).

A female was collected at Gopher Dam Mountain, Wilson Creek, on July 29th. It is fairly common at Eldorado, near the summit.

YUKON MARMOT (*Marmota monax ochracea*, Swarth.).

A fine specimen taken at Pike River on July 29th, also a female melanistic form was trapped in the same locality on July 29th. No others were seen. Two specimens preserved.

ARCTIC DEER MOUSE (*Peromyscus maniculatus borealis*, Mearns).

Common. Taken in June, July, and August at Wilson Creek, Hot Springs, and Pike River. Twenty-seven specimens preserved.

ROCK-LOVING WOOD RAT (*Neotoma cinerea saxamans*, Osgood).

Male and female collected at Gopher Dam Mountain, Wilson Creek (altitude 3,500 feet), on July 15th. Two specimens preserved.

DRUMMOND'S MEADOW VOLE (*Microtus drummondi*, Audubon & Bachman).

Taken at Wilson Creek on June 11th and 28th; at Atlin on August 10th and 12th. Common. Ten specimens preserved.

CANTANKEROUS MEADOW VOLE (*Microtus mordax*, Merriam).

Four collected at Atlin on August 13th, 15th, and 16th. Three specimens preserved.

NORTHWEST TERRITORY MUSK RAT (*Fiber zibethicus spatulatus*, Osgood).

Male shot at Camp Lake, Wilson Creek, on June 20th. Female shot at Anderson Bay, Lake Atlin, on August 6th. Several others were seen swimming on some of the small lakes close to Atlin.

DALL'S LEEMING VOLE (*Synaptomys dalli*, Merriam).

Male taken at Wilson Creek on June 10th. One specimen preserved.

STIKINE JUMPING MOUSE (*Zapus princeps saltator*, Allen).

Female taken at Wilson Creek on July 15th. One specimen preserved.

MACFARLANE'S HARE (*Lepus americanus macfarlanei*, Merriam).

Abundant everywhere throughout the district. Thirty specimens, including eight young, were taken in June, July and August. Twenty-six specimens preserved.

PACIFIC MINK (*Mustela vison energumenos*, Bangs).

Adult female trapped at Hot Springs, Atlin Lake, on July 10th. The skin is very dark, with fine pelage for summer skin.

DUSKY SHREW (*Sorex obscurus*, Merriam).

Male taken at Wilson Creek on June 13th. Young male collected at Atlin on August 14th. Two specimens preserved.

NAVIGATOR SHREW (*Neosorex palustris navigator*, Baird).

An adult male taken at Hot Springs, close to shore of Atlin Lake, in July. Specimen preserved.

DARK YUMA BAT (*Myotis yumanensis saturatus*, Miller).

Two seen at Anderson Bay, Lake Atlin, on August 6th. They were undoubtedly this species, as two were taken in the same locality the year previous. (Although a sharp look-out for bats was kept, we found them unusually scarce.)

REVISED LIST OF MAMMALS COLLECTED IN THE OKANAGAN VALLEY IN 1913.

By E. M. ANDERSON.

(Identified by the Biological Survey of Washington, D.C.)

STREATOR'S CHICAREE, SQUIRREL (*Sciurus hudsonicus streatori*, Allen).

Common throughout the Okanagan Valley. Specimens collected at Penticton on April 8th and at Okanagan Falls from April 15th to June 6th. Twenty-three specimens preserved.

ALLIED CHIPMUNK (*Eutamias affinis*, Allen).

Very abundant at Okanagan Falls. A large series taken in April, May, and June in the various points collected at. Thirteen specimens preserved.

COLUMBIAN SPERMOPHILE (*Citellus columbianus*, Ord.).

Common on nearly all of the foot-hills throughout the valley. Secured specimens at Schoonover Mountain on April 20th, May 20th, and June 1st to 15th. Ten specimens preserved.

DUSKY FLYING SQUIRREL (*Sciuropterus alpinus fuliginosus*, Rhoads).

One taken at Shuttleworth Creek on May 10th. Three others were secured at Schoonover Mountain on June 1st, 3rd, and 6th. Four specimens preserved.

YELLOW-BELLIED MARMOT, WOODCHUCK (*Marmota flaviventer averus*, Bangs).

Specimens taken at Shuttleworth Creek (Okanagan Falls) on April 15th, May 20th, and June 12th. Abundant throughout the valley. Six specimens preserved.

HOUSE MOUSE (*Mus musculus*, Linnæus).

Common at Penticton and Okanagan Falls. Three were collected at Penticton on April 8th and 15th. One taken at Okanagan Falls on April 19th. Abundant at abandoned railway-construction camps throughout the valley.

ASHCROFT, DEER MOUSE (*Peromyscus maniculatus artemisiæ*, Rhoads).

This is the commonest mouse in the Okanagan Valley. Adults collected at Penticton on April 15th; at Okanagan Falls in May and June. Twenty specimens preserved.

MOUNTAIN MOUSE (*Peromyscus oreas*, Bangs).

Found it only at Vaseaux Lake, where it frequented our camp. One male taken on May 20th and three females on May 27th. Four specimens preserved.

WESTERN BUSHY-TAILED WOOD RAT (*Neotoma cinerea occidentalis*, Baird).

Common in old cabins and mountain rock caves, etc. Specimens taken at Okanagan Falls on April 15th, collected at Schoonover Mountain on June 3rd and 4th, and a young male taken at Vaseaux Lake on June 18th.

MOUNTAIN VOLE (*Phenacomys orophilus*, Merriam).

Two males taken at Schoonover Mountain (Okanagan Falls) on April 24th and June 1st. Two specimens preserved.

GREY MEADOW VOLE (*Microtus nanus canescens*, Bailey).

Taken at Schoonover Mountain (Okanagan Falls) on April 21st, June 5th, 6th, and 7th. Four specimens preserved.

CANTANKEROUS MEADOW VOLE (*Microtus mordax*, Merriam).

Abundant in the mountain sections. Collected at Schoonover Mountain, Okanagan Falls, April 22nd to 25th; at Vaseaux Lake, May 26th; Schoonover Mountain, June 1st.

SWARTH'S POCKET GOPHER (*Thomomys fuscus*, Merriam).

Abundant throughout the valley. Taken at Schoonover Mountain on June 3rd and at Penticton on June 3rd and 4th. Very common in the orchards near Penticton. Six specimens preserved.

NORTHWEST POCKET MOUSE (*Perognathus lordi*, Gray).

Male collected at Vaseaux Lake on May 27th. Apparently not common, as only one was taken. Specimen preserved.

BRITISH COLUMBIAN HARE (*Lepus americanus columbiensis*, Rhoads).

Common at Okanagan Falls. Taken April 20th, May 10th, and 22nd at Shuttleworth Creek.

FORT YUMA BAT (*Myotis yumanensis*, H. Allen).

Two specimens collected at Okanagan Falls on May 27th and June 18th.

LITTLE CALIFORNIA BAT (*Myotis californicus*, Audubon & Bachman).

The commonest species in the district. Collected at Okanagan Falls in May and June. Nineteen specimens preserved.

SILVERY BAT (*Lasionycteris noctivagans*, Le Conte).

Taken at Vaseaux Lake on May 2nd, 20th, 22nd, and 24th. Five specimens preserved.

BROWN BAT.

Female collected at Vaseaux Lake on May 20th. Several others were seen throughout the district collected in.

FISHES COLLECTED IN ATLIN, 1914.

By E. M. ANDERSON.

LAKE TROUT (*Christimover mamaycush*, Walbaum).

Two specimens taken from Atlin Lake on August 12th; very abundant.

WHITEFISH (*Coregonus sp.*).

Four specimens obtained from Atlin Lake on August 10th. Two distinct species are found in Atlin Lake.

ARCTIC GRAYLING (*Thymallus signifer*, Richardson).

Plentiful on most of the rivers and Atlin Lake. Specimens taken on August 4th at Pike River and on August 12th at Atlin Lake.

BULLHEAD (*Cottus sp.*).

Atlin Lake, August 8th.

BATRACHIANS (FROGS), ATLIN, 1914.

RANA SP.

Common at Hot Springs in July. Twenty-five specimens collected from July 15th to 20th. Found them in no other section.

ENTOMOLOGICAL SPECIMENS COLLECTED IN THE ATLIN DISTRICT, 1914.

Over 2,000 insects were collected, comprising several orders. Thirty-two forms of Diurnals (butterflies) were taken, many of which are new records for British Columbia. Noctuidæ (moths) were scarce, this being attributed to the little or no darkness during the summer months.

Following is a list of captures which have been authentically determined to date of publication. Numbers prefixed are according to Dyar's List of North American Lepidoptera, 1902.

LEPIDOPTERA.

(Identifiers' names are affixed in brackets.)

DIURNALS (BUTTERFLIES).

1C. *Parnassius smintheus var. nanus*, Neumœgen (Northern Parnassian).

Common at Pike River July 27th, 28th, and 29th. A large series of over a hundred were taken, including a number of well-marked females. (Barnes & McDunnough.)

36A. *Pontia occidentalis var. calyce*, Edwards (Western White).

Fairly common at Wilson Creek in June. This form is the commonest white in the north. (Barnes & McDunnough.)

38A. *Pontia napi var. bryoniæ*, Ochsenheimer (Alpine White).

Not common. Two specimens taken at Wilson Creek on June 12th. Also a single worn female at Hot Springs on July 7th. We noted several on the wing at Skagway, Alaska, on June 4th. It is possible they may have been the form *hulda*. (Barnes & McDunnough.)

.... *Synclhlœ creusa*, Doubleday & Hewitson.

Common at Wilson Creek, where a number were taken on June 8th to 30th. Mr. McDunnough says specimens examined are typical.

63A. *Eurymus hecla var. glacialis*, McLachlan.

A single specimen collected at Anderson Bay on August 8th near the top of a mountain at 5,000 feet altitude. No others were observed. (Barnes & McDunnough.)

65B. *Eurymus eriphyle*, Edwards.

Abundant. Several taken at Wilson Creek on June 9th to 29th. Also occurred commonly at Hot Springs in July. Albinic females were also taken. (Mr. McDunnough states that this is the true form without a doubt.)

72. *Eurymus scudderi*, Reak (Scudder's Sulphur).

Appeared at Wilson Creek on June 20th to 30th. Fifteen taken at Hot Springs and Pike River during July. (Barnes & McDunnough.)

102. *Argynnis atlantis*, Edwards.

Fairly common at Hot Springs on July 12th to 25th. Specimens taken were a trifle smaller than type forms from the Catskills, New York. (Barnes & McDunnough.)

128B. *Argynnis eurynome var. bischoffi*, Edwards.

Two specimens collected at Pike River on August 8th. Mr. McDunnough states this is the silvered form of *bischoffi*, Edwards, practically the same as *var. washingtonia*. (Barnes & McDunnough.)

128D. *Argynnis bischoffi var. opis*, Edwards.

A single specimen obtained at Pike River on August 8th. The type locality for *opis* is Cariboo District, but specimen is fairly typical. (Barnes & McDunnough.)

131. *Brenthis myrins*, Cramer (Silver-bordered Fritillary).

About fifty were taken at Hot Springs on July 5th to 9th, where it was common. Not observed in any other section.

134. *Brenthis triclaris*, Hubner.

Fairly common at Wilson Creek. A number were collected at Gopher Dam Mountain at about 4,500 feet altitude. Did not occur on the lower levels. All were taken from July 15th to 20th. Mr. McDunnough until further examination refers them at present to *Aphirape v. ossianus*, Boisduval.

137C. *Brenthis chariclea var. boisduvalii*, Dup. (Boisduval's Fritillary).

Appeared commonly at Wilson Creek from June 15th to 30th. At Hot Springs a number were captured as late as July 20th. (Barnes & McDunnough.)

138. *Brenthis freija*, Thunberg; *syn. freya*, H. & S.

We found this the commonest *Brenthis* in the district. It appeared in numbers at Wilson Creek from June 7th to 30th, where a number were taken. This species is the first fritillary to emerge, being the only form flying when we arrived at the creek. (Barnes & McDunnough.)

139. *Brenthis polaris*, Bdv.

Not common. Three specimens collected at Wilson Creek on June 15th and 26th. (Barnes & McDunnough.)

140a. *Brenthis frigga var. saga*, Kaden.

A number were taken at Wilson Creek from June 11th to 28th. Fairly common. (Barnes & McDunnough.)

140b. *Brenthis frigga var. improba*, Butler.

Eight specimens collected on the summit of Gopher Dam Mountain, 500 feet altitude. Mr. McDunnough states that it is paler above than the typical specimen, and is still rare in collections.

191. *Phycoides pratensis*, Behr.

Eight specimens taken at Hot Springs from July 10th to 26th. Not a common insect. (Barnes & McDunnough.)

218. *Aglais milberti*, Goddart (Milbert's Tortoise-shell).

Two seen at Pike River on August 8th. Probably common later in the fall.

270a. *Erebia disa var. mancinus*, Dby.

We found this beautiful form flying with *Erebia epipsodea* at Wilson Creek from June 11th to 30th. About thirty specimens were taken. By no means common. (Barnes & McDunnough.)

273. *Erebia epipsodea*, Butler (Common Alpine).

Common at Wilson Creek throughout the month of June. A good series of fresh specimens were taken. Mr. McDonnough reports the specimens submitted to him as a true typical form.

282. *Cœnomympha kodiak*, Edwards.

Only two specimens taken at Wilson Creek on June 26th. These are the only two records we have from British Columbia. Apparently not common, as no others were seen. (Barnes & McDunnough.)

292. *Œnis jutta*, Hubner; *syn. Balder*, Bdv.

Not common. Eleven specimens taken at Wilson Creek during the last week of June. Fairly common. (Barnes & McDunnough.)

293. *Œnis uhleri*, Reakirt.

Rather common. Eleven specimens collected at Wilson Creek from June 15th to 30th. (Barnes & McDunnough.)

295f. *Œnis norna var. taygete*, Hubner.

Very common at Wilson Creek throughout the month of June. A large series of over a hundred were taken. This species is the common Arctic butterfly, and can be seen in numbers along the mountain trails and roadsides from 3,000 to 5,000 feet altitude. (Barnes & McDunnough.)

396. *Epidemia helloides*, Boisduval.

Two specimens collected at Hot Springs on July 26th and five at Pike River on August 3rd. (Barnes & McDunnough.)

Some of the *Epidemia* taken represent a form between *dorcas* and *xanthoides*. (McDunnough.)

409. *Cupido sæpiolus*, Bdv.

Common at Wilson Creek from June 8th to 30th. Also common at Hot Springs early in July. Specimens are rather off type. (Barnes & McDunnough.)

425. *Agriades aquilo*, Boisduval.

Thirty specimens collected at Wilson Creek from June 15th to 30th. Barnes & McDunnough identified it as an intermediate Western form between *aquilo*, Bdv., and *rustica*, Edwards.

432. *Rusticus scudderi*, Edwards.

Common at Wilson Creek in June and at Hot Springs in July. Over fifty specimens taken. The specimens are probably closer to true *scudderi* described from Lake Winnipeg than the Eastern form going under the same name. (McDunnough.)

644. *Hesperia centaureæ*, Rambur.

Only two specimens taken at Wilson Creek, one on June 22nd and another on June 29th. (Barnes and McDunnough.)

HETEROCERA (MOTHS).

(Identifiers' names are affixed in brackets.)

ARCTIIDÆ.

869. *Neoarctia yarrowi*, Stretch.

A perfect specimen taken at Wilson Creek on June 28th. Several others were seen on the wing in June. (Barnes and McDunnough.)

AGARISTIDÆ.

943. *Androloma mac-cullochii*, Kirb .

Fairly common in the mountainous sections in June. Specimens obtained at Wilson Creek from June 12th to 28th. (Barnes & McDunnough.)

NOCTUIDÆ.

1105. *Caradrina extimia*, Walker.

Three taken on August 20th at Atlin. (Barnes & McDunnough.)

1223. *Agroperina (Hadena) morna*, Strecker.

Single specimen taken at Pike River on July 29th, possibly a form of *morna*. (Barnes & McDunnough.)

1232. *Sidemia (Hadena) devastatrix*, Brace.

Atlin, August 15th, Cariboo Crossing, August 20th. (Barnes & McDunnough.)

1281. *Hyppa brunneicrista*, Smith.

One specimen taken at Hot Springs on July 6th, probably this species. (Barnes & McDunnough.)

1390. *Rhynchagrotis rufipectus*, Morrison.

Two specimens taken at Pike River on August 8th. (Barnes & McDunnough.)

1431. *Pachnobia littoralis*, Packard.

Single specimen on July 5th at Hot Springs is a form of *littoralis*. (Barnes & McDunnough.)

1489. *Agrotis (noctua) fennica*, Tauscher.

Five specimens taken at Atlin from August 8th to 12th. (Barnes & McDunnough.)

1736. *Euxoa (Paragrotis) divergens*, Walker.

Three specimens taken at Atlin on August 8th, 11th, and 12th. Mr. McDunnough is not quite sure of the identity of this species.

1737. *Euxoa redimicula*, Morrison.

Common at Atlin from August 9th to 19th. Eight specimens collected. (Barnes & McDunnough.)

1798. *Mamestra olivacea var. lucina*, Smith.

Single specimen collected at Atlin on August 8th. (Barnes & McDunnough.)

1840. *Mamestra sutrina*, Grote.

Single specimen collected at Wilson Creek on June 6th. (Barnes & McDunnough.)

1930. *Anarta cordigera*, Thunberg.

Common at Wilson Creek in June. Eleven specimens taken. (Barnes & McDunnough.)

1932. *Anarta melanopa*, Thunberg.

Not common. Three specimens collected at Wilson Creek from June 14th to 18th. (Barnes & McDunnough.)

1935. *Anarta richardsoni*, Curtis.

One specimen taken at Hot Springs on July 7th. (Barnes & McDunnough.)

1936. *Anarta? sp.*

A single specimen, possibly a dark form of *impinigens*, Walker, was taken at Atlin on August 15th. (Barnes & McDunnough.)

1974. *Cirphis (Heliophila) heterodoxa*, Smith.

One specimen taken at Hot Springs on July 17th. (Barnes & McDunnough.)

2533. *Autographa (Syngrapha) ignea*, Grote.

Four taken at Pike River from July 27th to 29th. (Barnes & McDunnough.)

.... *Autographa orophila*, Hampson.

Two taken at Pike River on July 29th. (Barnes & McDunnough.)

3223. *Epicnaptera americana*, Harris.

A female collected at Wilson Creek on June 21st. (Barnes & McDunnough.)

4197A. *Albuna pyramidalis var. montana*, Hy. Edwards.

Three collected at Wilson Creek on June 28th. (Barnes & McDunnough.)

GEOMETRIDÆ.

(Identifiers' names are affixed in brackets.)

3255. *Philopsia (Talledega) montanata*, Packard.

Common at Wilson Creek in June; specimens taken on June 12th, 16th, 21st, and 27th. (L. W. Swett.)

.... *Eupithecia adornata*, Taylor.

Three taken at Wilson Creek on June 20th and 21st. (L. W. S.)

3350. *Eustroma propulsata*, Walker.

Taken At Atlin on August 11th. (E. H. Blackmore.)

3351A. *Eustroma destinata var. lugubrata*, Moschler.

A single specimen taken at rest on a fence at Atlin on August 13th. (L. W. S.)

3353. *Eustroma nubilata*, Packard.

Wilson Creek, June 26th. (E. H. B.)

3359B. *Rheumaptera hastata var. hastulata*, Hubner.

Common at Wilson Creek from June 9th to 30th. (L. W. S.)

3360. *Rheumaptera tristata*, Linnæus.
Fairly common at Wilson Creek from June 16th to 28th. (E. H. B.)

3362. *Rheumaptera luctuata*, Dennis & Schiffermuller.
Wilson Creek, June 15th to 20th. (L. W. S.)

3362A. *Rheumaptera luctuata var. obducata*, Moschler.
Wilson Creek, June 26th to 28th. (L. W. S.)

3379B. *Mesoleuca citrata var. suspectata*, Moschler.
Wilson Creek, June 14th. (E. H. B.)

3381. *Mesoleuca silaceata*, Hubner.
Common in the mountainous sections in June. A good series taken at Wilson Creek. (E. H. B.)

3387C. *Hydriomena furcata var. quinquefasciata*, Packard.
Very abundant throughout the month of June at Wilson Creek. (L. W. S.)

3419. *Hydriomena magnoliata*, Guenee.
Found it common at Wilson Creek from June 18th to 30th. (E. H. B.)

3434. *Stamnoedes (Cœnocalpe) topazata*, Strecker.
Fairly common at Wilson Creek in June. Previous record Mount Cheam. (E. H. B.)

3449. *Petrophora salvata*, Pearsall; *incursata*, Hubner.
Taken at Wilson Creek on June 30th. (L. W. S.)

3450. *Petrophora abrasaria*, Herrich-Schaeffer.
Common at Wilson Creek in June. (L. W. S.)

3603. *Epelis truncataria*, Walker.
Fairly common at Wilson Creek from June 12th to 30th. (E. H. B.)

3777. *Enypia perangulata*, Hulst.
Single specimen taken at Carcross on August 20th. (E. H. B.)

3878. *Jubarella danbyi*, Hulst.
Two specimens taken at Wilson Creek on June 26th and 28th. (E. H. B.)

PYRALIDÆ.

4404. *Phlyctœnia itysalis*, Walker.
Common at Hot Springs on July 17th. (Barnes & McDunnough.)

. . . *Phlyctœnia sp?*
Pike River, August 8th; possibly *tellealis*, Dyar. (Barnes & McDunnough.)

4504. *Scoparia lugubralis*, Walker.
Hot Springs, July 4th. (Specimens rubbed; the identification is not certain.) (Barnes & McDunnough.)

. . . . *Scoparia sp?*
Hot Springs, July 7th. (Barnes & McDunnough.)

4510. *Scoparia centuriella*, Dennis & Schiffermuller.
Very common at Wilson Creek in June. A large series of this species were collected. Very variable. (Barnes & McDunnough.)

4563. *Crambus pascellus*, Linnæus.
Common at Hot Springs. Several taken from July 5th to 10th. (Barnes & McDunnough.)

4583. *Crambus myellus*, Hubner.

Fairly abundant at Hot Springs. Specimens were taken on July 4th, 5th, and 6th. (Barnes & McDunnough.)

4776. *Laodamia fusca*, Harworth.

Nine specimens taken at Wilson Creek from June 15th to 30th. (Barnes & McDunnough.)

5071. *Olethreutes bipartitana*, Clemens.

Common. Six specimens taken at Hot Springs on July 8th and 12th. (Barnes & McDunnough.)

.... *Hysterosia homonana*, Kearfoot.

A single specimen taken at Hot Springs on July 8th. (Barnes & McDunnough.)

TINEIDÆ.

.... *Memotois bellela*, Walker.

One specimen taken at Hot Springs on July 4th. (Barnes & McDunnough.)

DIPTERA. (ATLIN, 1914.)

(Idt. by Raymond C. Osburn.)

TABANIDÆ.

Tabanus affinis, Kirby.
Tabanus sp.?
Tabanus osburni, Hine.

BOMBYLIDÆ.

Anthrax fulviana, Say.

SYRPHIDÆ.

Syrphus contumax, O. Sacken.
" *intrudens*, O. Sacken.
" *(catabomba) pyrastri*, Linnæus.
" *torvus*, O. Sacken.
Hanmerschmiatia ferruginia, Fallen.
Ersitalis rupium, Fabricus. New to America; common in Europe.
Melanostoma sp (Prob. new sp.)

ODONATA (DRAGON-FLIES). (ATLIN, 1914.)

(Idt. by Raymond C. Osburn and E. B. Williamson.)

Aeshna sitchensis, Hagen. (Osburn.)
" *eremista*, Scudder. (Osburn.)
Enallagma calverti, Morse. (Osburn.)
" *cyathigerum*, Charpentier. (Osburn.)
Leucorhinia hudsonica, Selys. (Williamson.)
" *proxima*, Calvert. (Williamson.)
Somatochlora hudsonica, Hagen. (Osburn.)

SUPPLEMENTARY LIST OF INSECTS COLLECTED IN THE OKANAGAN, 1913

(Identifiers' names are affixed in brackets.)

ARCTIIDÆ.

833. *Eubaphe immaculata*, Reakirt.
Penticton, June 27th, 1913. (Wolley Dod.)

NOCTUIDÆ.

1226. *Hadena cogitata*, Smith.
Penticton, July 7th. (W. D.)

1496. *Noctua unicolor*, Walker; *syn. clandestina*, Harris.
Five specimens taken at Penticton on June 28th. (W. D.)

1708. *Hadenella subjuncta*, Smith.
Three specimens taken at light, Penticton, July 3rd. (W. D.)

1894. *Xylomiges dolosa*, Grote.
Fairly common on peach-blossoms at Okanagan Falls, May 5th. (W. D.)

1895. *Xylomiges rubrica*, Harvey.
Okanagan Falls, May 5th. Very common on peach-blossoms. A large series of 220 taken. Very variable. (W. D.)

. . . *Stretchia angula*, Smith?
Five taken at Okanagan Falls on May 6th, 8th, and 12th. (Mr. Wolley Dod states specimens examined agree with the description of types from Arrow Head Lake, B.C., but he never saw the species before.)

2102. *Xylina georgii*, Grote; *syn. holicineria*, Smith.
Seven taken at Okanagan Falls from May 5th to 30th. (W. D.)

2120. *Colocampa cineritia*, Grote; *syn. mertena*, Smith.
Five collected at Okanagan Falls on May 6th and 10th. (W. D.)

2142. *Rancora strigata*, Smith.
Five fresh specimens taken at light at Okanagan Falls on May 5th, 7th, and 8th. (W. D.)

2240. *Scopelosoma tristigmata*, Grote.
Okanagan Falls, May 7th. (W. D.)

2405. *Melicleptria honesta*, Grote.
Vaseaux Lake, Okanagan Falls, May 26th. (W. D.)

2601. *Eustrotia albidula*, Guenee.
Penticton, June 30th, three taken at light. (W. D.)

2761. *Syneda (euclidia) annexa*, Hy. Edwards.
Common at Okanagan Falls from April 26th to May 7th. (W. D.)

HYPENINÆ.

3008. *Epizeuxis americalis*, Guenee.
Penticton, June 30th. Mr. Wolley Dod states that it appears to be very rare in British Columbia, the only previous record being one from the late G. W. Taylor's collection.

3039A. *Chytolita petrealis*, Grote.
Penticton, June 21st. (W. D.)

3168. *Gluphisa severa*, Hy. Edwards.
Two taken at Okanagan Falls on April 24th. (W. D.)

GEOMETRIDÆ.

3237. *Cladora atroliturata*, Walker.
Okanagan Falls, April 20th and 22nd. (L. W. Swett.)

.... *Nausina (Gymnocelis) melissa*, Grosbeck.
Okanagan Falls, May 19th. (L. W. S.)

3316. *Eupithecia cestata*, Hulst.
Okanagan Falls, April 18th and 20th. (L. W. S.)

3318. *Eupithecia implorata*, Hulst.
Okanagan Falls, April 18th to 22nd, fairly common at light. (L. W. S.)

3321. *Eucymatoge tenuata*, Hulst.
Okanagan Falls, June 10th. (L. W. S.)

3436. *Marmopteryx marmorata*, Packard.
Two taken at Shuttleworth Creek, Okanagan Falls, May 7th and 10th. (L. W. S.)

.... *Leptomeris subfuscata*, (Taylor).
Fairly common at Shuttleworth Creek, Okanagan Falls, May 23rd and 30th. (L. W. S.)

3550. *Leptomeris (Eois) sideraria*, Guenee.
Okanagan Falls, June 10th and 12th, common. (L. W. S.)

3623. *Deilinia variolaria* Guenee.
Penticton, July 3rd. (L. W. S.)

3648. *Sciagraphia denticulata*, Grote.
Okanagan Falls, May 6th to 8th. (L. W. S.)

3662. *Sciagraphia excurvata*, Packard.
Okanagan Falls, May 9th. (L. W. S.)

3792. *Alcis dissonaria*, Hulst.
One specimen taken at Okanagan Falls on May 5th and another at Penticton on June 30th.

3850. *Cleora pampinaria*, Guenee.
Penticton, July 6th. (L. W. S.)

3867. *Lycia cognataria*, Guenee.
Penticton, June 30th and July 2nd. (L. W. S.)

3960. *Euchlaena johnsonaria*, Fitch.
Okanagan Falls, June 25th.

THYRIDÆ.

4131. *Thyris maculata*, Harris.
Okanagan Falls, June 8th. (Wolley Dod.)

GEOMITRIDÆ (ATLIN, 1913).

3343. *Eutcphria (philereme) multivagata*, Hulst.
Atlin, September 9th. (L. W. S.)

3380A. *Mesoleuca citrata*, Linnæus.
September 12th and 13th. (L. W. S.)

LIST OF HYMENOPTERA COLLECTED AT OKANAGAN FALLS, 1913.

(Idt. by J. C. Crawford.)

Bombus occidentalis. Okanagan Falls, May 13th to 27th.
〃 *edwardsii.* Okanagan Falls, April 19th to 22nd, May 3rd.
〃 *separatus.* Okanagan Falls, May 27th.
〃 *oppositus.* Okanagan Falls, June 13th to 27th.
Psithyrus insularis. Okanagan Falls, June 6th.
Halictus lerouxii. Okanagan Falls, April 19th.
〃 *trizonatus.* Okanagan Falls, June 12th.
Agapostemon femoratus (?). Okanagan Falls, June 13th.
Bombomelerta fulvida. Okanagan Falls, April 19th to 26th.
Anthophora solitaria, Ritz. Okanagan Falls, June 2nd.
Sphecodes hesperellus. Okanagan Falls, June 2nd.
Andrena kincaidii, Ckll. Okanagan Falls, May 13th.
〃 *vicina*, Smith. Okanagan Falls, May 7th.
Ceratina submaritima. Okanagan Falls, June 12th.
Megachile sp. Okanagan Falls, June 5th.
Osmia sp. (two distinct var.). Okanagan Falls, June 2nd.
Anthophora sp. Okanagan Falls, May 28th.

ACCESSIONS.

Jan. 4. Canvas-back. Presented by Eric Leighley, Departure Bay, Vancouver Island.
〃 10. 4 Moose (cow, 2 bulls, and calf).
7 Ptarmigan
3 Pine Grosback } Sucker Lake, Atlin, B.C. Purchased.
4 Musk-rat
〃 16. Indian carving on slate, representing "Thunderbird." Presented by J. C. Lowe, Victoria.
〃 20. Indian carving on sandstone, found September 1913, on Nass River above Meziadin River, and presented by Jno. Coughlan, Stewart, B.C.
〃 21. Indian stone implement (found, 1899); Indian arrow-points (found, 1913). Presented by Robert Wood. Found at Armstrong, B.C.
〃 22. Black Rat. Presented by F. Dangerfield, Victoria.
〃 20. 1 Gairdner's Woodpecker, Victoria District. E. M. Anderson.
〃 27. 1 Northwestern Flicker (hybrid), Victoria District. E. M. Anderson.
〃 27. 2 Oregon Towhee, Victoria District. E. M. Anderson.
〃 20. 1 Northwestern Flicker, Victoria District. E. M. Anderson.
〃 20. 1 Steller's Jay, Victoria District. E. M. Anderson.
〃 27. 1 Northwestern Crow, Victoria District. E. M. Anderson.
〃 30. 1 Rusty Song Sparrow, Victoria District. E. M. Anderson.
〃 30. 2 Sooty Fox Sparrow, Victoria District. E. M. Anderson.
〃 30. 1 Oregon Junco, Victoria District. E. M. Anderson.
〃 30. 2 Gairdner's Woodpecker, Victoria District. E. M. Anderson.
Feb. 3. 1 Short-billed Gull, Victoria District. E. M. Anderson.
〃 3. 1 Gairdner's Woodpecker, Victoria District. E. M. Anderson.
〃 3. 1 Varied Thrush, Victoria District. E. M. Anderson.
〃 3. 1 Western Robin, Victoria District. E. M. Anderson.
〃 3. 1 Kennicott's Screech Owl, Victoria District. E. M. Anderson.
〃 3. 1 Steller's Jay, Victoria District. E. M. Anderson.
〃 4. 1 Clarke's Crow, Victoria District. E. M. Anderson.

Feb. 9. 3 Steller's Jay, Victoria District. E. M. Anderson.

" 10. 1 Northwestern Saw-whet Owl, Victoria District. E. M. Anderson.

" 13. Noduled Crab, Esquimalt Harbour. Presented by Captain Chas. Mayer, yacht "Adventuress."

" 16. 1 Short-eared Owl, Victoria District. E. M. Anderson.

" 18. 1 Marbled Murrelet, Victoria District. E. M. Anderson.

" 18. 1 Clarke's Crow, Victoria District. E. M. Anderson.

" 24. Marmot-skull (deformed incisors, unusual growth). Taken by J. Ross, of Fort Grahame, and presented by Geo. V. Copley, Victoria

" 27. 1 Shoveller, Abbotsford, New Westminster. Presented by Mr. Peel.

" 28. 1 California Pigmy Owl. Presented by Junior Audubon Society, Nelson, B.C.

March 1. 1 Western Evening Grosbeck. Presented by Herbert M. T. Hodgson, Port Alberni, B.C.

" 3. 1 Scaup Duck (showing albinism). Presented by A. B. Williams, Provincial Game Warden, Vancouver.

" 12. 3 White-tailed Ptarmigan, Atlin, B.C. Alex. Smith and W. Taku.

" 12. 5 Willow Ptarmigan, Atlin, B.C. Alex. Smith and W. Taku.

" 12. 3 Alaskan Pine Grosbeak, Atlin, B.C. Alex. Smith and W. Taku.

" 12. 3 Musk-rat, Atlin, B.C. Alex. Smith and W. Taku.

" 14. 2 Grey-ruffed Grouse, Kamloops. Deputy Game Warden Woods.

" 14. 5 Franklin's Grouse, Kamloops. Deputy Game Warden Woods.

" 14. 3 Columbian Sharp-tailed Grouse, Deputy Game Warden Woods.

" 14. 1 Fannin's Heron. Jno. Graham.

" 31. 1 Harris' Woodpecker, Victoria District. E. M. Anderson.

April 3. Young Cohoe Salmon, lake—near Nanaimo. E. Gordon Kermode.

" 3. Columbia Chub, lake—near Nanaimo. E. Gordon Kermode.

" 13. 1 Dolly Varden Trout, Coquihalla River, Hope, B.C. Presented by J. D. Forsyth, Vancouver.

" 15. Eggs of Peale's Falcon. C. deB. Green, Masset.

" 15. 1 Northwestern Flicker, Saanich, B.C. E. M. Anderson.

" 15. 3 Northwestern Redwing, Saanich, B.C. E. M. Anderson.

" 15. 1 Northern Violet-green Swallow, Saanich. E. M. Anderson.

" 15. 2 Lutescent Warbler, Saanich, B.C. E. M. Anderson.

" 15. 1 Oregon Junco, Saanich, B.C. E. M. Anderson.

" 15. Varied Thrush, eggs and nest. C. deB. Green, Masset.

" 17. Snake Blennie, Dallas Road, beach, Victoria. Presented by W. Richards.

" 17. Moon-shell, Gulf of Georgia. Presented by W. R. Collister, Vancouver, B.C.

" 22. 2 Sooty Grouse, Malahat, Vancouver Island. E. M. Anderson.

" 23. Mounted specimens of Lepidoptera. E. H. Blackmore, Victoria.
Including: 10 *Parnassius clodius.*
2 *Papilo eurymedon.*
2 *Pieris rapæ var. marginalis.*
6 *Lemonias taylori.*
1 *Basilarchia lorquini.*
6 *Epidemia helloides.*
6 *Anthomaster agricola.*
1 *Thorybes pylades.*
2 *Thanaos propertius.*

May 6. Small-mouthed Bass, Vaseaux Lake, Okanagan. Presented by W. Hine.

" 11. Water-beetle, Kamloops, B.C. Presented by S. W. Batten, 150-Mile House, Cariboo.

" 18. Collection of Indian curios, including:
Bracelet of trade wire
Perforated tooth
Tooth-shaped bone
Polished stone
Whetstone
Presented by E. W. Abraham, Vargas Island.

" 28. Nest and eggs of California Partridge, Victoria, B.C. Presented by G. H. Hunter.

June 10. 2 Moths, Polyphemus and Sphynx, White's Landing, Fraser River. Presented by L. Higgins, Prince George, B.C.
″ 12. 2 eggs of Loon, Penuse Lake, Yale District. Presented by Reg. Sweet.
″ 15. Bison-skull, 3 feet underground, at Wilson Creek, Atlin. E. M. Anderson.
″ — Collection of 300 entomological specimens, Chilcotin District. W. A. Newcombe.
″ — Shufeldt's Junco, nest and eggs, Chilcotin District. W. A. Newcombe.
″ — Richardson's Grouse (4 eggs hatched), Chilcotin District. W. A. Newcombe.
″ — 1 Frog, Chilcotin District. W. A. Newcombe.
″ — 1 Toad, Chilcotin District. W. A. Newcombe.
″ — 2 Larvæ, Meuroptera, Chilcotin District. W. A. Newcombe.
″ — 1 Red-shafted Flicker and two eggs, Chilcotin District. W. A. Newcombe.
″ — 5 White-footed Mice, Chilcotin District. W. A. Newcombe.
″ — 1 Mammal-tooth, Chilcotin District. W. A. Newcombe.
″ — 1 Porcupine-skull, Chilcotin District. W. A. Newcombe.
July 30. Milbert's Tortoise-shell Butterfly, Parksville, B.C. Presented by R. Rushton.
Aug. 21. Steller's Jay (showing albinism), Cobble Hill, V.I. Presented by Maurice Barry.
″ 20. Butterfly, Milbert's Tortoise-shell (Melanistic). Presented by Jno. Clark, Victoria.
Sept. 2. Larvæ, Papilio, Victoria, B.C. Presented by P. M. F. Clough.
″ 2. Larvæ, Papilio, Cowichan Bay, V.I. Presented by J. Young.
″ 2. 1 Black Spermophile, Carcross, Y.T. Presented by Leo. Simmons.
″ 3. 1 Frog, Vernon, B.C. Max Ruhman.
″ 9. 1 Hairworm, Nanaimo. Presented by V. B. Harrison.
″ 14. 2 Chrysalis Papilio, Victoria, B.C. Presented by A. Francis.
″ 21. Hog's tooth, Victoria, B.C. Presented by Robt. Thomas.
″ 23. 1 Virginia Rail, Victoria, B.C. Presented by H. Aitkin.
″ 23. 1 Northwestern Coast Heron, Parsons Bridge, V.I. Presented by Wallace K. Crockett.
Oct. 2. Specimens of fossil shells, Winter Harbour. J. S. Behnsen.
″ 16. 1 Blue-bellied Lizard, Prince Rupert. Presented by M. L. Bird.
″ 17. 1 Willow Goldfinch, Victoria District. E. M. Anderson.
″ 26. 1 Western Red-tail, Cedar Hill. S. Whittaker.
″ 26. 1 California Partridge, Cedar Hill. S. Whittaker.
″ 26. 1 Lewis' Woodpecker, Dewdney, B.C. Miss S. A. Mills.
″ 26. 1 Western Flycatcher, Victoria. F. Kermode.
Nov. 13. 2 Western Evening Grosbeak, Saanich, B.C. A. H. Maynard.
″ 18. 5 Western Golden-crowned Kinglet, Victoria. E. M. Anderson.
″ 18. 3 Oregon Junco, Victoria District. E. M. Anderson.
″ 18. 1 Varied Thrush, Victoria District. E. M. Anderson.
″ 27. 1 Black Rat, Victoria. Presented by Edward Cooke.
″ 29. 1 Pine Siskin, Victoria District. E. M. Anderson.
″ 29. 2 Western Winter Wren, Victoria District. E. M. Anderson.
″ 29. 2 Chestnut-backed Chickadee, Victoria District. E. M. Anderson.
Dec. 1. 1 Vancouver Chicaree, Victoria District. E. M. Anderson.
″ 1. 1 Northwestern Crow, Victoria District. E. M. Anderson.
″ 1. 3 Harris' Woodpecker, Victoria District. E. M. Anderson.
″ 1. 4 Western Winter Wren, Victoria District. E. M. Anderson.
″ 1. 2 Western Golden-crowned Kinglet, Victoria District. E. M. Anderson.
″ 1. 1 Sooty Fox Sparrow, Victoria District. E. M. Anderson.
″ 3. 1 Dusky Horned Owl, Okanagan Landing. W. R. Moore.
″ 4. Rufous Hummingbird nest and eggs, Victoria. N. Blyth.
″ 4. Nest of Alaskan Yellow Warbler, Victoria. N. Blyth.
″ 9. Skin of Yellow-haired Porcupine, Okanagan Landing. J. A. Munro.
″ 9. 2 shells, 1 *Epidemia mariposa*. C. deB. Green, Masset.
″ 9. Mastodon-tooth } Dago Gulch, on Hunker Creek (1903), bequeathed
″ 9. Mammoth-tooth (small) } by Mrs. C. A. Coulson.

Dec.	9.	Mammoth-tooth	Chicken Creek, near 40-Mile (1908), bequeathed by Mrs. C. A. Coulson.
"	9.	Mammoth-tusk	
"	9.	Mammoth-tusk (portion of)	
"	15.	Killdeer Plover, Alberni, B.C.	Presented by Deputy Game Warden Carter.

ACCESSIONS, 1913. (OMITTED FROM 1913 REPORT.)

Aug.	29.	Kelp, with parasitic growth.	Presented by W. H. Ellis, Victoria.
Sept.	15.	Musk-rat.	Kermode and Anderson, Atlin, B.C.
"	26.	" (Albino).	Presented by W. Vanvolkenberg, Atlin, B.C.
Oct.	—	1 Sockeye Salmon	Presented by M. McTavish, Rivers Inlet, B.C.
"	—	2 Banded Sailor Fish	
"	—	Diseased growth on salmon	
"	—	1 Blennie	

ANTHROPOLOGY.

REPORT OF C. F. NEWCOMBE, M.D., FOR 1914.

VICTORIA, B.C., December 31st, 1914.

F. Kermode, Esq.,
Director, Provincial Museum, Victoria.

SIR,—Owing to various causes the strictest economy has been exercised in curtailing the expenditure of the appropriation voted for the year 1914 for the purchase of anthropological specimens for the Provincial Museum.

Therefore only one field expedition was made, from May 14th to May 28th. This was to the Kwakiutl region near Alert Bay, Fort Rupert, and Blunden Harbour. It was successful in acquiring a series of ceremonial objects relating to the important cannibal winter dance of these people, and in filling up some of the blanks in the series illustrating their every-day life.

A few specimens have been acquired by correspondence, and some have been presented by various donors whose names will be found in the appended list of accessions for the current year.

Acknowledgment should also be made of the attempt of the Women's Canadian Club of Victoria to purchase and present to the Museum a totem-pole from Rivers Inlet. After agreeing to sell this pole at a certain price the native owner changed his mind, and the negotiation came to an end through no fault of the would-be donors or of the gentleman who acted as their agent. The totem-pole referred to would have been a valuable addition to the Museum, as Rivers Inlet is not represented in our collection. From other Kwakiutl villages, however, we have no less than eight of these poles; so that, as a whole, this tribe has had justice done to it.

An annotated list of specimens collected during the year 1914 is appended hereto.

I have, etc.,

C. F. NEWCOMBE, M.D.

SPECIMENS COLLECTED BY C. F. NEWCOMBE, M.D., 1914.

Haida.

Climbing outfit.
Bark-stripper.
Chisel.
Baskets (3).
Paddles (2).
Kelp fish-line.
Nose ornament of abalone.
Charm of abalone.

Kwakiutl.

Totem-poles (5).
Land-trap models (3).
Fish-trap models (2).
Hat.
Hat-cover.
Mask, Tsekiwi.
  „ Galukwiwi.
  „ Waakshan.
Bearskin blanket.
Skull head-dress.
Neck rings of cedar bark (3).
Face-mask of cedar bark.
Rattles (3).
Whistles (16).
Head-bands cedar bark (2).
Apron of cedar bark.
Cape „
Armlets „ (1 pr.)
Anklets „ (2 pr.)
Knee-bands „ (1 pr.)
Nettle fibre beater.
War-club of stone.
Mask, Hamatsa's raven.
  „ Sisiutl.
  „ Ya-akim.
Copper-breaker's anvil.
Paddle, carved.
Pile-driver, stone.
Slave-killer (model).

Nootkan.

Chief's stick.
Daggers (2), models.
Club, model.
Slave-killers (2), models.
Knife, model.
Adze, model.
Charm, model.
Ceremonial cups (2), models.
Fish-traps (2), models.
Dentalia spear.

Salish.

Basket, Sechelt make.
Wampum of stone.
House-boards (2).
Carved bone.

Bella Coola Salish.

Blanket.

Kootenaiain.

Basket.

Athapascan (?).

Marmot-skin blankets (3).

Athapascan-Chilcotin.

Baskets (3).
Marmot-skin blankets (2).

Presentations.

Haida skull and jaw.
Salish stone sinker.
Salish stone mortar.

Presented by Sir J. Jackson (Canada) Co., Ltd., Ogden Point, Victoria, through H. A. Elgee.
Stone implements, presented by Capt. F. Saunders, Digby Island.

COLLECTIONS OF J. A. TEIT FROM THE INTERIOR OF BRITISH COLUMBIA, 1914.

Ntlakyapmuk or Couteau tribe (Interior Salish).

Boy's suit consisting of—
  Head-band of buckskin and feathers.
  Leggings of caribou-skin.
  Breech-clout.
  Shirt of buckskin, fringed and beaded.
Woman's costume consisting of—
  Cap of buckskin, ornamented.
  Dress of caribou-skin, ornamented.
  Leggings of buckskin, fringed.
  Leggings, buckskin, fringed.
  Dress of buckskin, ornamented.
Man's head-bands (2) of buckskin and feathers.
Head-band of musk-rat skins and buckskin, ornamented.
Head-band of rabbit-skin and buckskin.
Woman's head-bands (2) of buckskin.
Man's cap of skin of heron.
Man's cap of squirrel-skins, etc.
Woman's cap of buckskin.
Chief's bonnet, buckskin, ornamented with feathers, ermine, etc.
Pendant, dressed moose-skin, feathers, etc.
Woman's dance-dress of netted Indian hemp, etc.
Neck-wrap of rabbit-skin and buckskin.
Cape of rabbit-skin.
Cape of marmot-skin and buckskin.
Large robe of 23 hoary marmot-skins.
Man's hunting-shirts (2) of buckskin.
  " moccasin of buffalo-skin.
  " Breech-clout of buckskin.
  " leggings (2 pair) of buckskin.
Baskets, coiled (9).
Basket, birch-bark.
  " willow-bark.
Bridle of horsehair.
Stirrups of mountain-sheep horn.
Whip of mountain-maple wood.
Stone war-club.
Black pipe.
Time-beater.
Iron ring used in ring and lance game.
Wooden stick used in ring and lance game.
Set of lynx-bones for lehal game.
Girl's paint-scratcher.
  " comb.
  " drinking-tube.
  " wiper of bark.
Fire-drill.
Wooden spoon.
Rawhide bag.
Bags (3) of elæagnus bark.
Carrying-bag of buckskin.
Mat of elæagnus bark.
  " rushes.

Athapascan (Tahltan Tribe).

Robe of 90 skins of ground-squirrel lined with blanket.

ILLUSTRATIONS—ANTHROPOLOGY.

Plate I.—

Fig. 1. Chief's Ceremonial Blanket, Killer Whale Design, Salish, Bella Coola. $\frac{2326}{1206}$
Fig. 2. Ceremonial Blanket, Salish, Bella Coola. $\frac{2324}{376}$

Plate II.—

Fig. 3. Ceremonial Blanket, Salish, Capilano.
Fig. 4. Drying Bear-skin on Frame, Tsimshian, Nass River.

Plate III.—

Fig. 5. Totem-pole, Tsimshian, Gitex, Nass River. Photo by W. A. Newcombe.
Fig. 6. Totem-pole, Tsimshian, Gitex, Nass River. Photo by W. A. Newcombe.

Plate IV.

Fig. 7. Totem-pole, Tsimshian, Angidah, Nass River. Photo by W. A. Newcombe.
Fig. 8. Totem-poles, Tsimshian, Angidah, Nass River. Photo by W. A. Newcombe.

Plate V.—

Figs. 9 and 10. Totem-poles, Tsimshian, Kitladamix, Nass River. Photos by W. A. Newcombe.

Plate VI.—

Fig. 11. Cannibal Bird Mask, Kwakiutl, Blunden Harbour. $\frac{1918}{1148}$
Fig. 12. Cannibal Bird Mask, Kwakiutl, Blunden Harbour. $\frac{1917}{1147}$

Plate VII.—

Fig. 13. Cannibal Raven Mask, Kwakiutl, Blunden Harbour. $\frac{1953}{1185}$
Fig. 14. Cannibal Bird Mask (double), Kwakiutl, Blunden Harbour. $\frac{1916}{1146}$

Plate VIII.—

Fig. 15. Clan Spirit Mask, closed, Kwakiutl. $\frac{1952}{1184}$
Fig. 16. Clan Spirit Mask, open.

Plate IX.—

Fig. 17. Fish-trap, Nootka. $\frac{2220}{1203}$
Fig. 18. Fish-trap, Bella Coola. $\frac{2333}{896}$

Plate X., Ceremonial Batons, illustrating crests and legends—

Fig. 19. Kwakiutl of Knight's Inlet. $\frac{1989}{972}$
Fig. 20. Kwakiutl of Fort Rupert. $\frac{1988}{971}$
Fig. 21. Kwakiutl of Bella-Bella. $\frac{2312}{921}$
Fig. 22. Nootkan of Mowichat. $\frac{2111}{1119}$

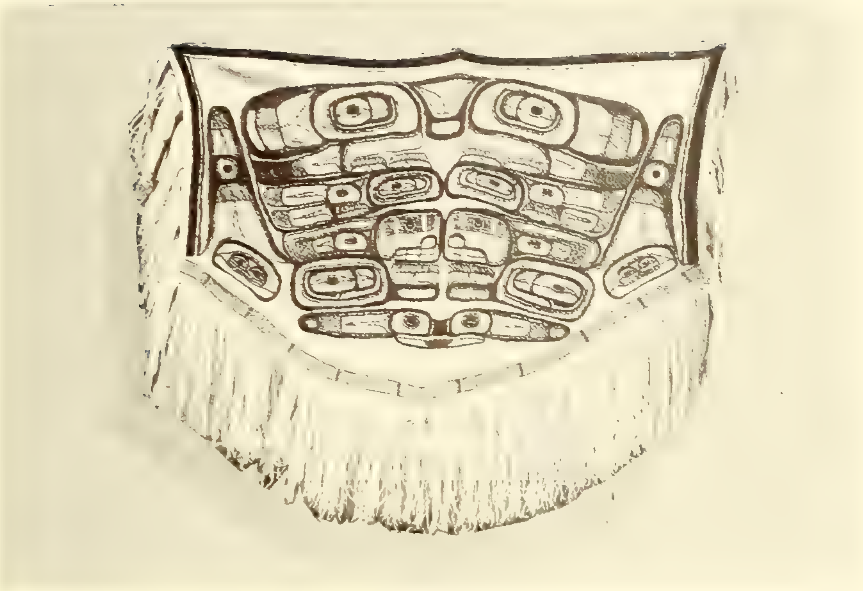

Fig. 1.

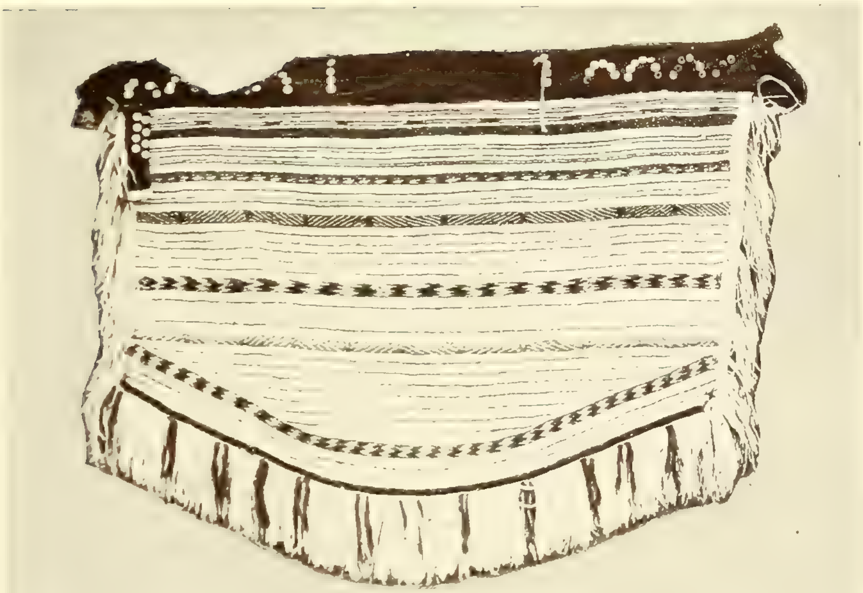

Fig. 2.

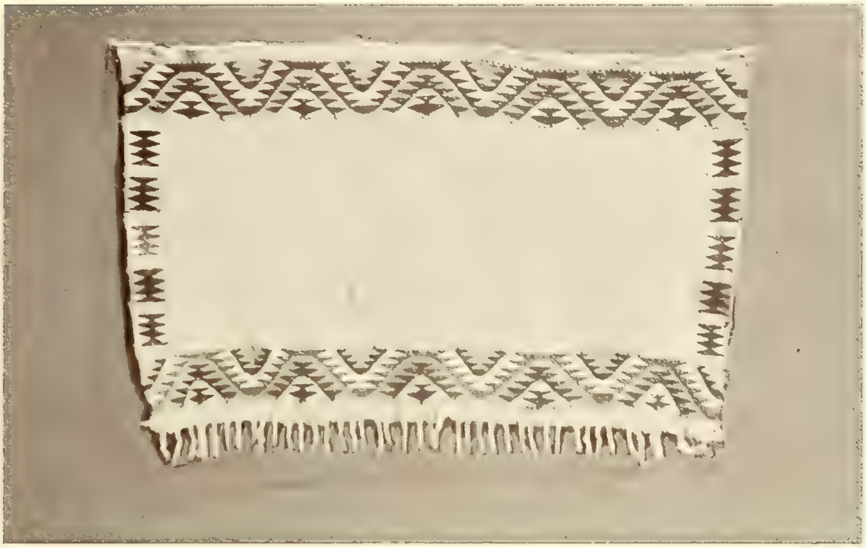

Fig. 3.

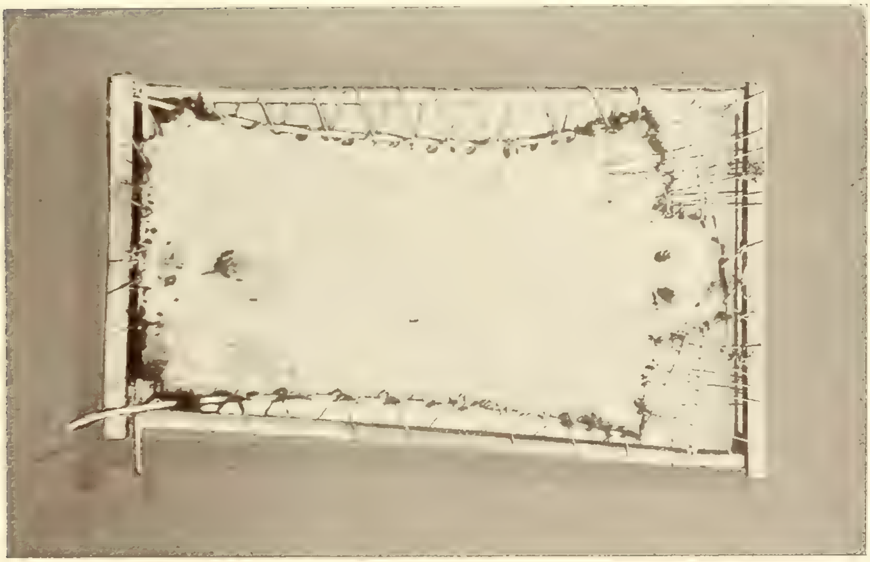

Fig. 4.

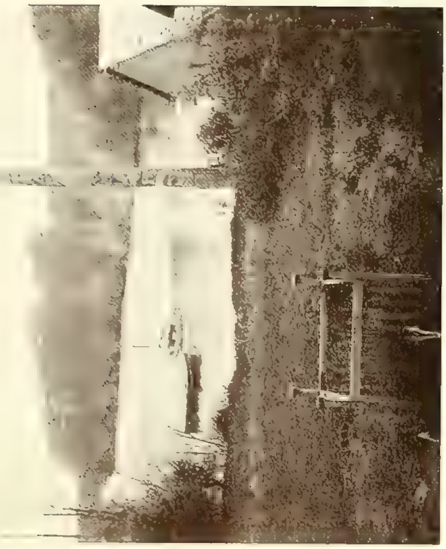

Fig. 5.

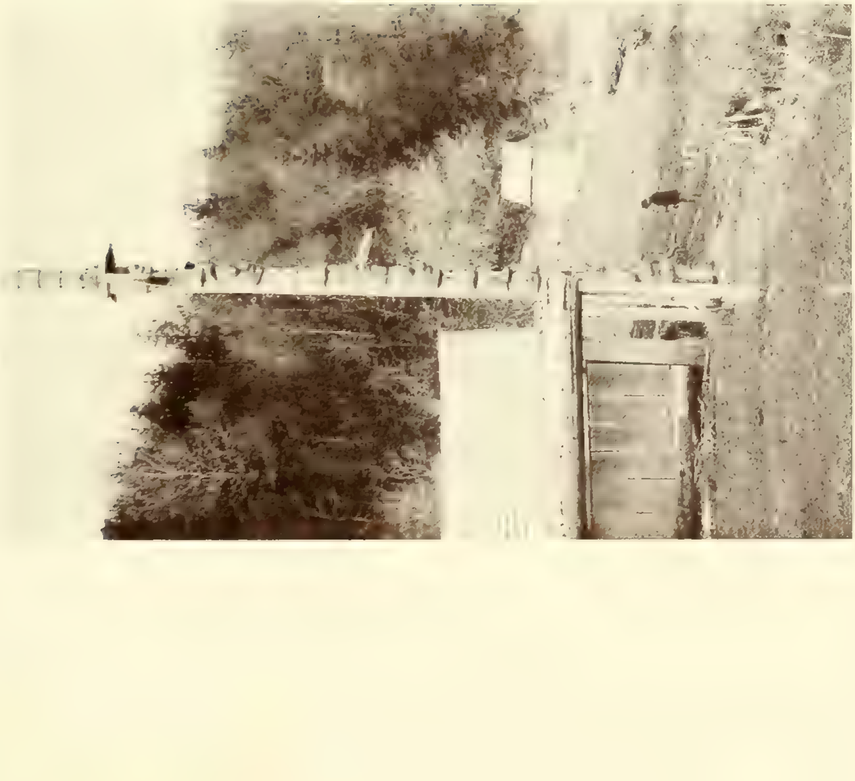

Fig. 6.

PLATE IV.

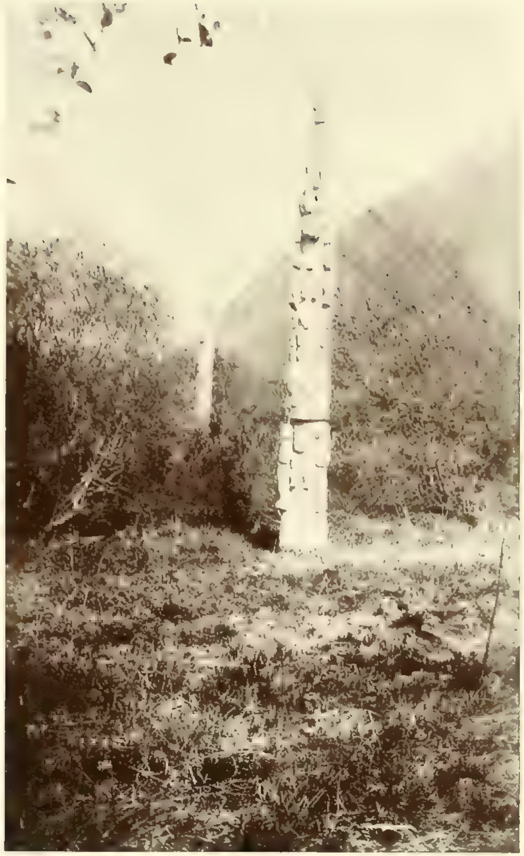

Fig. 8.

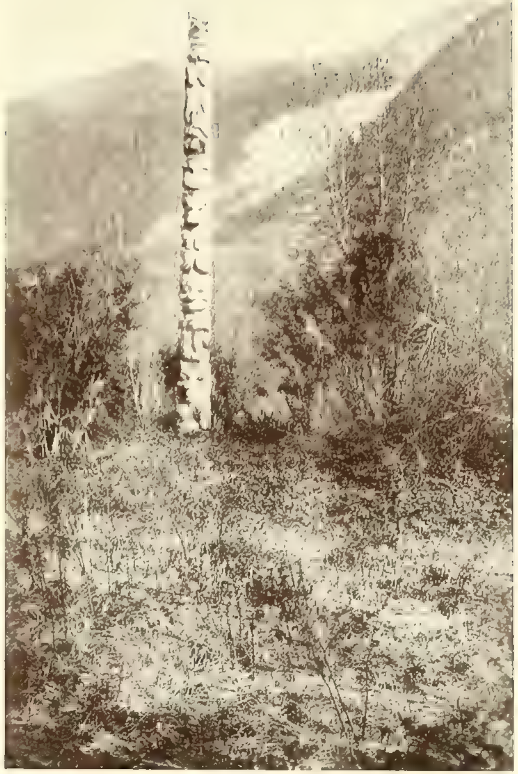

Fig. 7.

PLATE V.

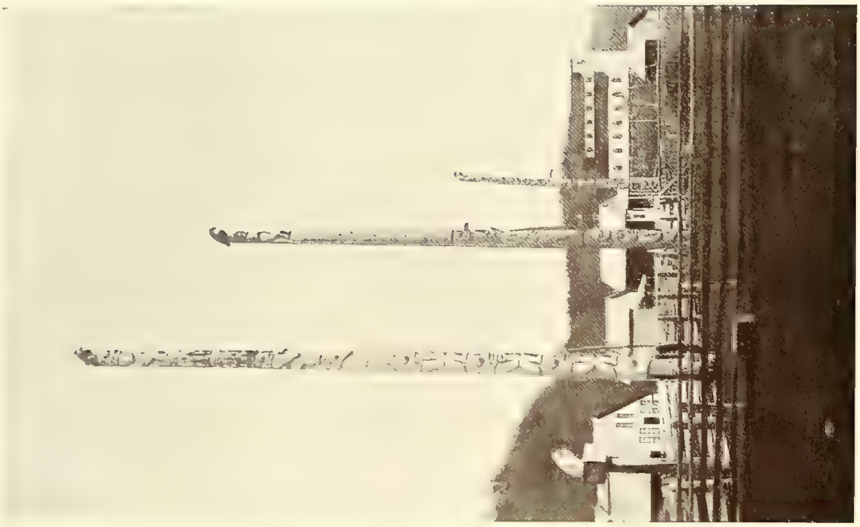

Fig. 9.

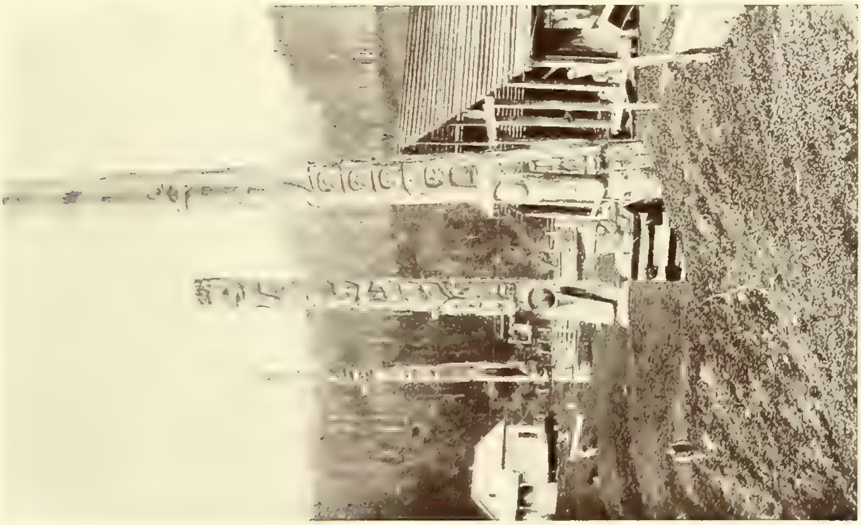

Fig. 10.

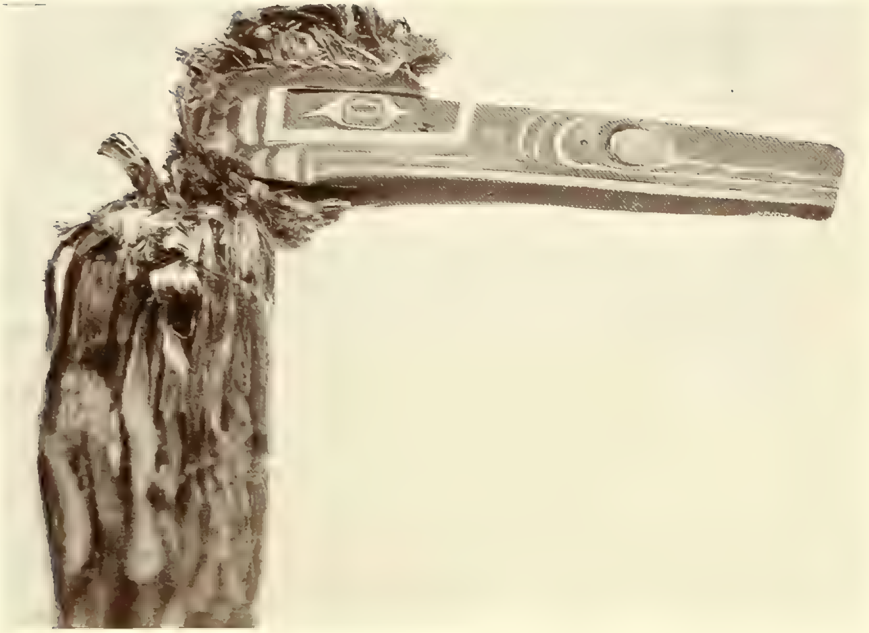

Fig. 11.

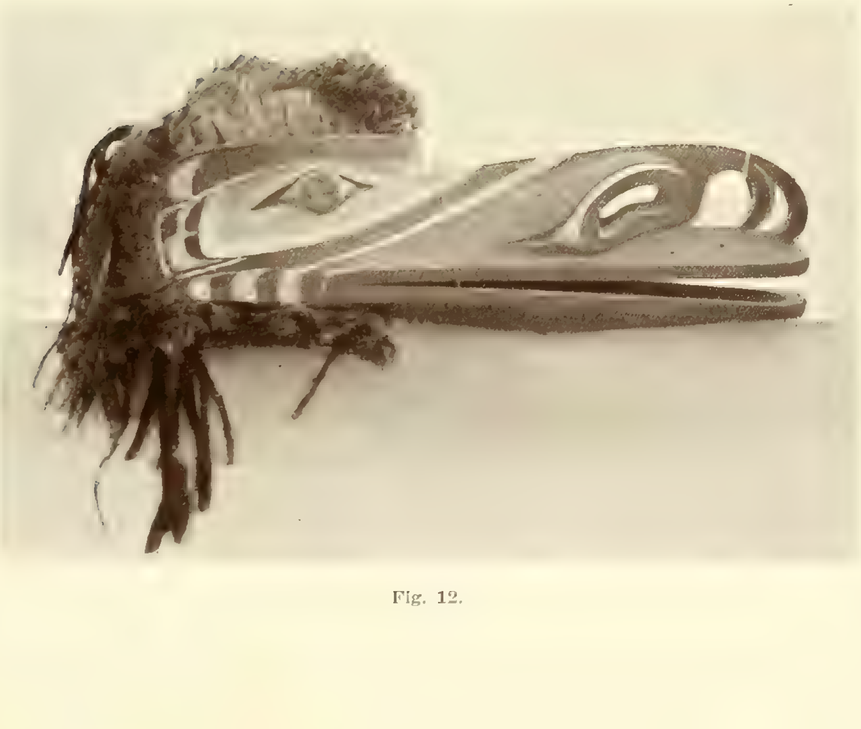

Fig. 12.

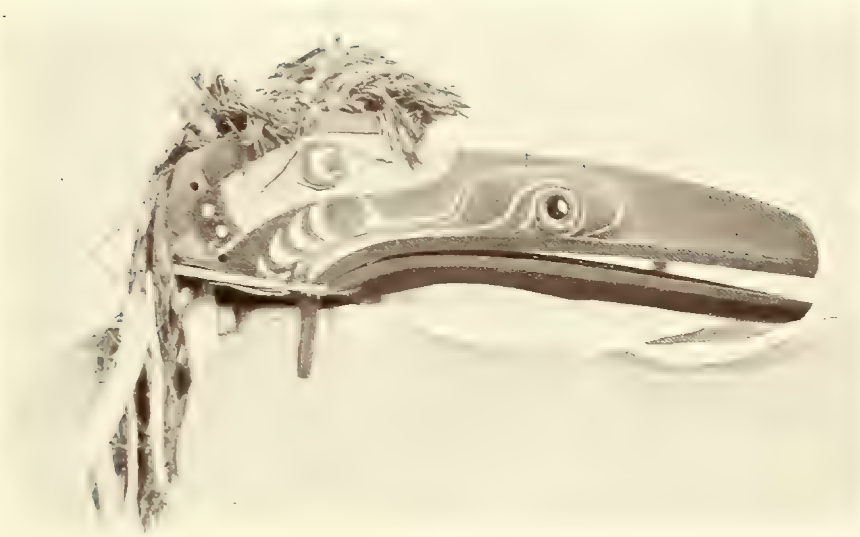

Fig. 13.

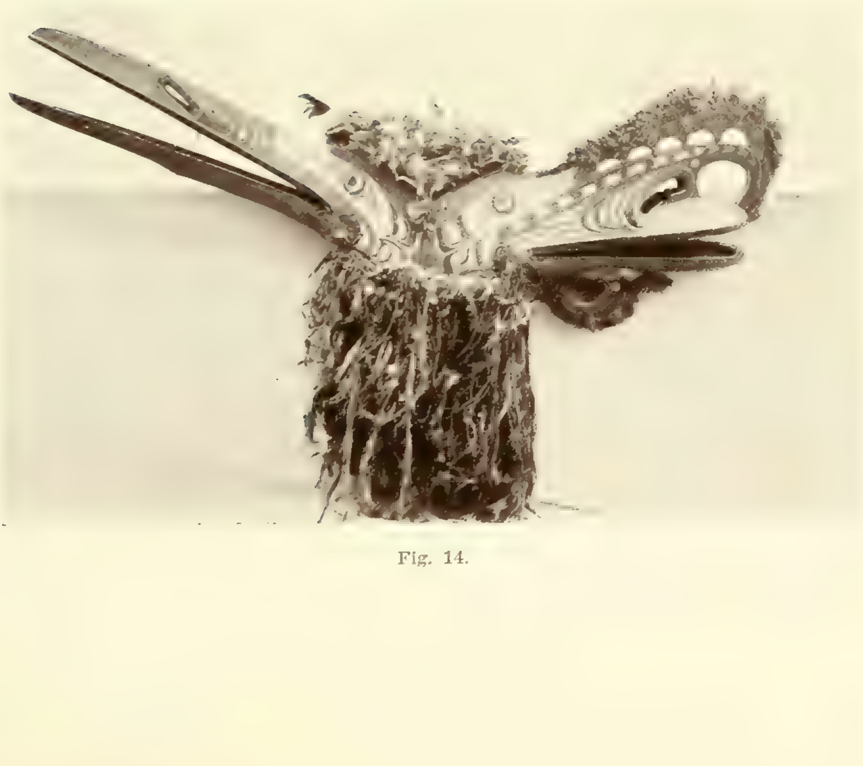

Fig. 14.

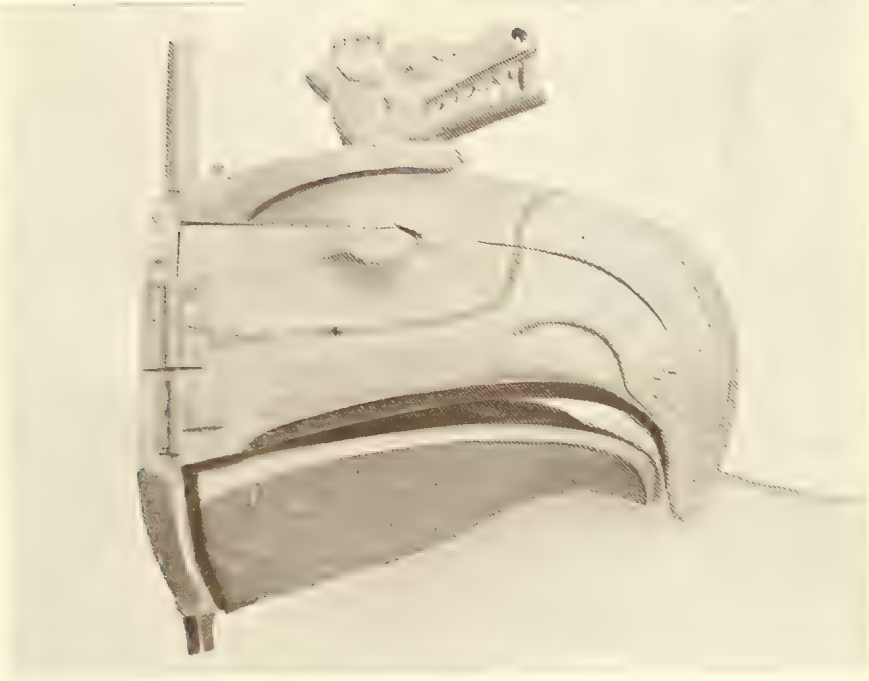

Fig. 15.

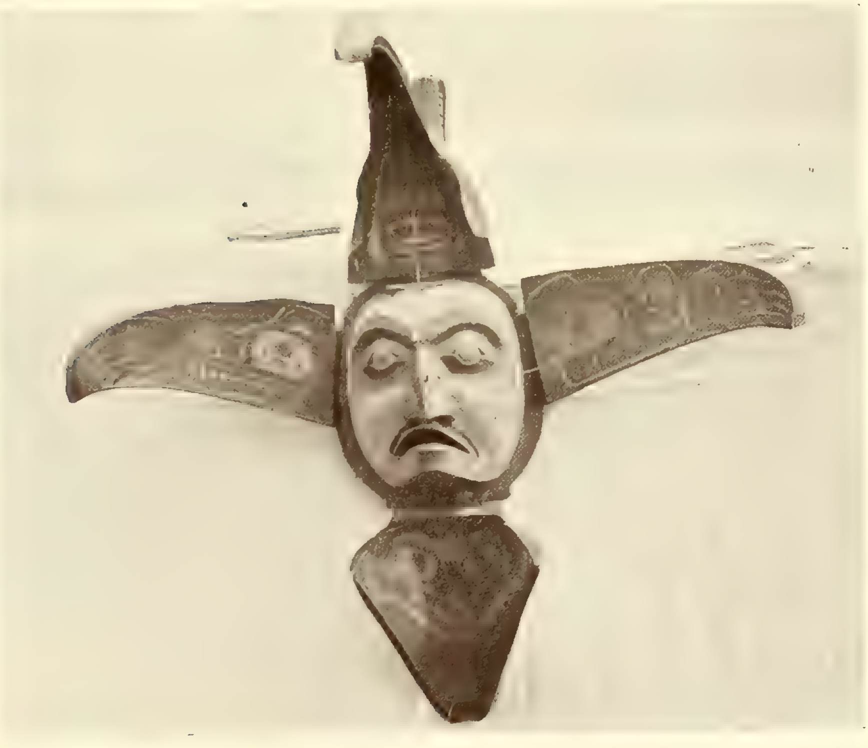

Fig. 16.

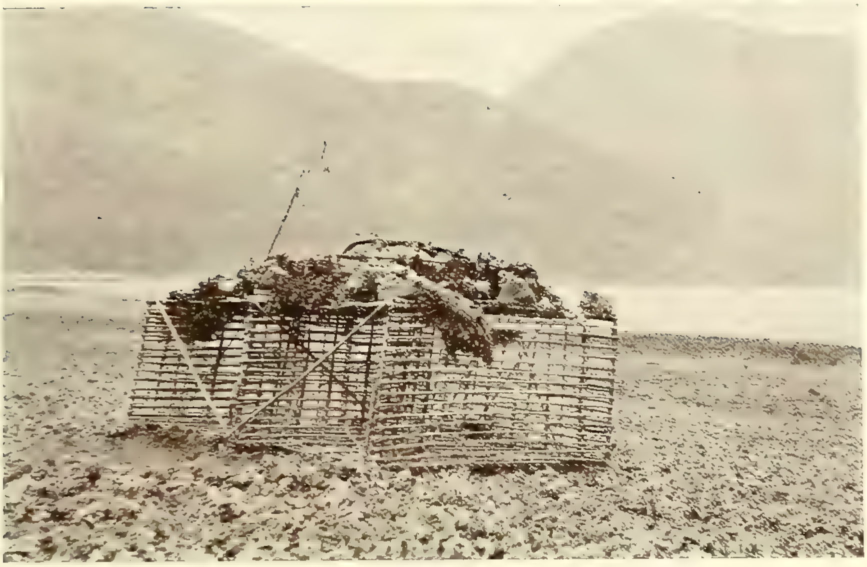

Fig. 17.

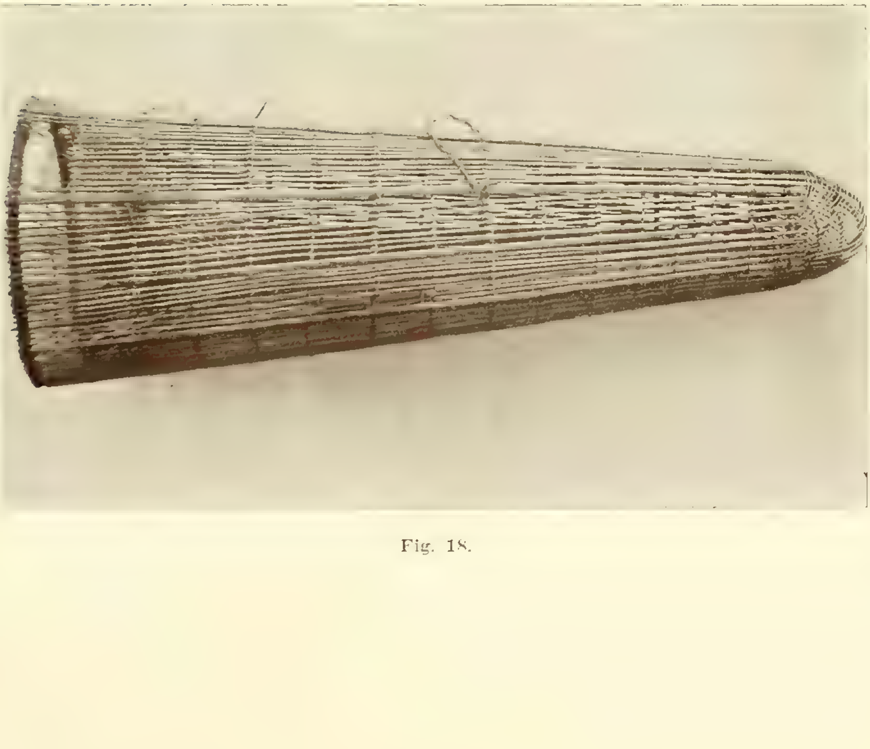

Fig. 18.

PLATE X.

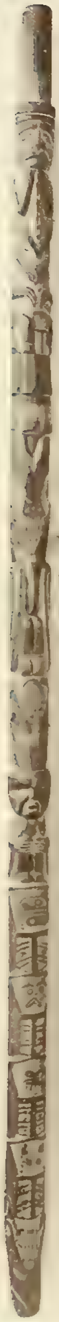

Fig. 19.

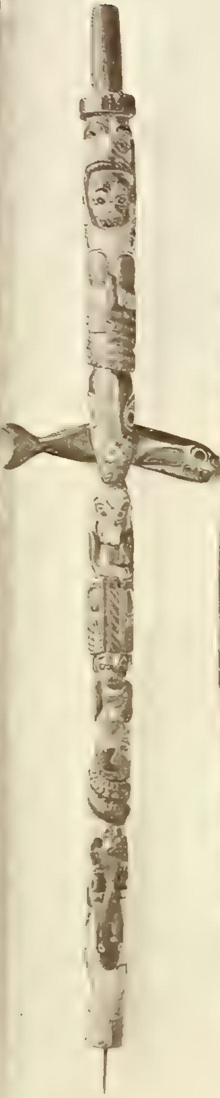

Fig. 22.

Fig. 21.

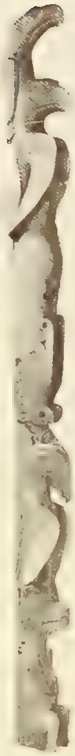

Fig. 20.

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Bulletin 50—Birds of North and Middle America.
" 71—Monograph of the Foraminifera of N. Pacific Ocean.
" 83—Type Species of the Genera of Ichneumon Flies.
" 84—Contribution to the Study of Ophiurans.
" 86—Monograph of Genus Chordeiles swainson, New Fam. Goatsucker.
" 87—Culture of Ancient Pueblos, New Mexico, Arizona, etc.
" 73—Beaked Whales, F. W. True.
" 74—West Indian Echinoids.
" 85—Jumping Plant Lice.
Extracts from Proceedings—
No. 2019, Vol. 46—New Sponge from New Jersey.
" 2021, " 46—Extinct Bisons of North America.
" 2023, " 46—Brackish Water Pliocene Fauna of S. Coastal Plain.
" 2025, " 46—Camels of Fossil, g. Camelops.
" 2028, " 46—Philippine Is. Land Mammals.
" 2030, " 46—New sp. Crab, Family Grapsidæ and Ocypodidæ.
" 2032, " 46—Rotatoria of Washington.
" 2036, " 46—New American Pycnodont Fishes.
" 2034, " 46—Bats g. Glossophaga.
" 2038, " 46—Fossil Crinoid, g. Homocrinus.
" 2044, " 47—New species Crab, Fam. Grapsidæ and Ocypodidæ.
" 2047, " 47—New Genera and sp. American Srachryhynchous Crabs.
" 2022, " 46—New Starfishes, Philippine Is.
" 2053, " 47—New Freshwater Mussel, Brazil.
" 2055, " 47—Littoral Marine Mollusks, Virginia.
" 2057, " 47—Grasshopper Mice.
" 2059, " 47—Peculiarity in Tail Feathers Giant Hornbill.
" 2062, " 47—Rotatoria from Panama.
" 2067, " 48—Crabs, Family Goneplacidæ.
" 2069, " 48—South American Jaguars.

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" " 587—North American Skunks.
" " 609—Bird Houses.
N. A. Fauna No. 30—New Mexico, by Vernon Bailey.
" " 36—American Harvest Mice, by A. H. Howell.
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" " 128—North American Rails.
Report of Chief of Bureau of Biological Survey.

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" " 1, " II.— " " "
" " 11—Excursion, Quebec and E. Ontario.
" " 3— " Montreal and Ottawa.
" " 4— " S. W. Ontario.
" " 5— " Western Peninsula of Ontario and Manatoulin Island.
" " 8, Pt. I.—Excursion, Toronto to Victoria and Return.
" " 8, " II.— " " " "
" " 9—Excursion, Toronto to Victoria and Return.
" " 10— " Northern B.C., Yukon, etc.

Memoir No. 8E–Bathurst District, N.B.
" 23—Islands of Straits of Georgia and Queen Charlotte.
" 25—Clay and Shale Deposits of Western Provinces.
" 26—Geology and Mineral Deposits of Tulameen District, B.C.
" 29E–Oil and Gas Prospects of New Brunswick.
" 31—Wheaton District, Y.T.
" 44—Clay and Shale Deposits, New Brunswick.
" 48—Ojibwa Myths, S.E. Ontario.
" 32—Portland Canal and Skeena Mining Divisions.
" 43—St. Hilaire Mts., Quebec.
" 45—Alaskan Esquimo.
" 52—Geological Notes, Alberta.
" 33—Gowganda Mining Division.
" 20E–Goldfields of N.S.
" 39—Kewagama Lake, Que.
" 40—Archæan Geology Rainy Lake.
" 41—Fern Ledges, St. John, N.B.
" 42—N.E. Algonkian Art.
" 54—Flowering Plants, etc., Quebec.
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Museum Bull. No. 3—Anticosti Is. Fauna.
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Museum Bull. No. 5—Beatricea-like Organism from Mid. Ordovician.
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Vol. III.—Arizona Reptiles.
Vol. III—Mammals of California.

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Zoology, Vol. 11, No. 11—Leeches.
" " 11, " 12—Ocelli of Polyorchis.
" " 11, " 13—Feathers of Circus hudsonicus.
" " 11, " 14—Western Meadow Lark.
" " 11, " 15—Anetides lugubris.
" " 12, " 4—Mammals and Birds of Colorado Valley.
" " 12, " 5, 6—New Mountain Beaver of N. California, etc.
" " 12, " 7—Microdipodops from California.
" " 12, " 8—River Otters of California.
" " 12, " 9—Pocket-gophers of California.
" " 12, " 10—Bats of California.
" " 13, " 1—Schizopoda, San Diego Region.
" " 13, " 2—Ctenophora, San Diego Region.
" " 13, " 3—Self-regulating Parraffin Bath.
" " 13, " 4—Diplodinium ecaudatum.
" " 13, " 5—Sehizopoda of San Diego Region.
" " 13, " 6—Heterodontus francisci.
" " 13, " 7—Melanophores of Frog.
" " 13, " 8, 9—New Syllidæ, San Francisco Bay.
" " 13, " 10—Medusan, g. Stomolphus, San Diego.
" " 14, " 1—Physical Conditions of San Francisco Bay.
" " 11, " 7, 8—Pigment Cells from Larvæ of Amphibians, etc.

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Pub. 173, Report Series, Vol. IV., No. 4—Report, 1913.
„ 174, Zoological Series, Vol. X., No. 10—Fresh-water fishes of Costa Rica.
„ 175, „ „ „ X., „ 11—New Mammals, Venezuela.
„ 176, „ „ „ X., „ 12—Mammals of Northern Peru.

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Bull., Vol. XXXIII., Art. XI.—Genus Microsciurus.
„ „ XXXIII., „ XIV.—Two New Mammals, Ecuador.
„ „ XXXIII., „ XII.—New Columbian Birds.
„ „ XXXIII., „ XIII.—New g. Birds from Venezuela.
„ „ XXXIII., „ XXVI.—Mammals from East Africa.
„ „ XXXIII., „ XXIII.—New Birds from Ecuador.
„ „ XXXIII., „ XXV.—New South American Bats, etc.
„ „ XXXIII., „ XXXVIII.—South American Mammals.
„ „ XXXIII., „ XLIII.— „ „ Monkeys.
„ „ XXXII., „ XXIV.—New Mammals from Columbia.
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„ 187—Feeding experiments with Lambs.
„ 188—Ration Experiments with Swine.
„ 190—Brome Grass
„ 191—Alfalfa Seed Production.
„ 192—Cider Vinegar.
„ 193—Colorado Soils.
„ 194—Artificial Waterways.
„ Coll. Pub. General Series Nos. 75 and 76—Birds of El Paso, California.

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„ III., „ 8—Annual Report, 1911.
„ III., „ 10— „ „ 1912.
„ IV., „ 1—Bird Houses.
„ IV., „ 2—Atwood Celestial Sphere.

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„ „ III., „ II.— „ „
„ „ III., „ IV.— „ „
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„ 1912-13.
Proceedings, Vol. IV, Pt. III. & IV.

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" " 3—Graphic Art, Middle Europe.
" " 4—Geo. Innes and Alex. H. Wyant.
" " 5—Gardner Symons.
" " 7—Charles W. Stetson.
" " 9—8th Annual Exhib. of Two by Four Society.
" " 10—Elizabeth Wentworth Roberts.
" " 11—9th Annual Exhib. American Art.
" " 13— " " "
" " 14—Paintings by Alexis Jean Fourner.
" " 15—Early American Artists.
" " 16—19 An. Exhib. Society of Western Artists.
" " 17—Etchings and Paintings. Geo. C. Aid.
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Charleston Museum—Vol. IX., No. 8 : P. M. Rae.
" " X., " 1 : Report
" " X., " 2 : Ferns.
" " X., " 3.
" " X., " 4 : Butterflies, etc.
" " X., " 5 : May, 1914.
" " X., " 6 : Oct., 1914.
" " X., " 7 : Nov., 1914.
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Zoological Society of Philadelphia—Annual Report.
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" " " X., " II., " 1913.
" " " X., " III., Mar., 1914.
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" " " " 3 : New Zealand.
" " " " 2 : "
Colonial Museum, " " " 1 : "
Museum of Fine Arts—Vol. XI., No. 67.
" " " XII., " 68.
" " " XII., " 69.
Art Institute of Chicago—Vol. VII., No. III.
" " " VII., " IV.
" " " VIII., " I.
Ex. American Journal of Science—Vol. XXXVII. : Fossil Dolphin, California.
" " " XXXVII. : Mammet americanum in Connecticut.
" " " XXXVIII : Revision on Geological Time-table for America.
" " " XXXVIII : Indiana Black Shale.
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" 21st Annual Exhibition American Art, 1914.
" 33rd Annual Report, 1913.

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Children's Museum, Boston—Bull., Vol. I., No. 1.
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" " " " VIII., " 4, Oct., 1914.
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" " Apr., 1914.
" " Oct., 1914. 38th Annual Report, 1914.
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" " " " V., " 1.
" " " " V., " 2.
" " " " V., " 3.
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" " Report, 1913.
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" " "Founders Day," 1914.
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" " XIV., " 1: "
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VICTORIA, B.C.:
Printed by William H. Cullin, Printer to the King's Most Excellent Majesty.
1915.

No 7

PROVINCE OF BRITISH COLUMBIA

REPORT

OF THE

PROVINCIAL MUSEUM

OF

NATURAL HISTORY

FOR THE YEAR 1915.

SMITHSONIAN INSTITUTION
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FEB 5 1932
NATIONAL MUSEUM

THE GOVERNMENT OF
THE PROVINCE OF BRITISH COLUMBIA

PRINTED BY
AUTHORITY OF THE LEGISLATIVE ASSEMBLY.

VICTORIA, B.C.:
Printed by William H. Cullin, Printer to the King's Most Excellent Majesty.
1916.

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PROVINCE OF BRITISH COLUMBIA

British Columbia Provincial

REPORT

OF THE

PROVINCIAL MUSEUM

OF

NATURAL HISTORY

FOR THE YEAR 1915.

THE GOVERNMENT OF
THE PROVINCE OF BRITISH COLUMBIA

PRINTED BY
AUTHORITY OF THE LEGISLATIVE ASSEMBLY.

VICTORIA, B.C.:
Printed by WILLIAM H. CULLIN, Printer to the King's Most Excellent Majesty.
1916.

To His Honour Frank Stillman Barnard,

Lieutenant-Governor of the Province of British Columbia.

May it please Your Honour:

The undersigned respectfully submits the Annual Report of the Provincial Museum of Natural History for the year 1915.

THOMAS TAYLOR,

Provincial Secretary.

Provincial Secretary's Office,

March 17th, 1916.

PROVINCIAL MUSEUM OF NATURAL HISTORY,
VICTORIA, B.C., March 17th, 1916.

The Honourable Thomas Taylor,
Provincial Secretary, Victoria, B.C.

SIR,—I have the honour, as Director of the Provincial Museum of Natural History, to lay before you the Report for the year ending December 31st, 1915, covering the activities of the Museum.

I have the honour to be,
Sir,
Your obedient servant,
FRANCIS KERMODE,
Director.

John Cochrane, Sir Richard McBride, K.C.M.G., A. A. Freeman, Colonel Theodore Roosevelt, Hon. D. M. Eberts, K.C., and F. Kermode.

PROVINCIAL MUSEUM REPORT

FOR THE YEAR 1915.

Since the Report of 1914 considerable progress has been made in the gathering of specimens of natural history of the Province. Most of these specimens, like the material that has been secured in recent years, will have to be placed in storage, as it is impossible now to place any more material on exhibition owing to the fact that the collection has outgrown the present building. The subjects which are best represented and which have been as a whole most completely classified, and can therefore be most advantageously exhibited for the benefit of the public, are, namely: Anthropology, mammalogy, ornithology, oology, ichthyology, entomology, and botany. In the several branches of these subjects the collections are already important and extensive, including a number of type specimens, and arrangements are under way for valuable additions. While it is a primary duty of the Museum to preserve and exhibit specimens confided to its care, the importance of the collection does not rest there, nor upon the number of specimens assembled and their value in currency, but upon the use to which they are put. From an educational point of view the collections are of great value to those persons who are interested in studying the natural history of this Province. The specimens in the exhibition halls have been carefully labelled, and there is also a large study series in the several branches in the annex at the rear of the Museum Building. These study series are available, on application to the Director, to those persons who wish to consult them. This annex is only a frame building and not fire-proof, therefore every precaution is taken to ensure its safety, as it contains many valuable specimens that it would be impossible to replace, especially in the branch of anthropology. It also contains a large study series of bird-skins for which moth-proof drawer-cases were made during the summer. During the early part of the year the botanical collection which has been in the Department of Agriculture was transferred to the Museum, as it was thought that this collection would be more accessible to the general public for study were it placed in conjunction with the Museum collection which was started in the year 1898, and which has been greatly added to by the Department collectors in the last few years.

A great deal of attention was given during the past year to the proper labelling of specimens and the sorting of collections preparatory for storage. This work was principally carried on after the close of the collecting season and entails considerable work. A number of specimens in the several branches of natural history have to be sent to authorities on the different subjects to be identified and verified. This work is done gratis for the Province by larger institutions principally in the United States, who have a large staff of scientists with whom the Director keeps in touch. The collections of the Provincial Museum are developing so much that before long our scientific staff will have to be increased by having custodians in charge of some of the most important branches of natural history, more particularly if the Museum is to be expected to carry on educational work. A great deal more interest is being taken in the flora and the fauna of the Province by school-teachers, especially during the session of the summer school which is held in Victoria. The Museum is always ready to assist visiting teachers in any way possible, and from remarks that have been expressed, this seems to be thoroughly appreciated. It is gratifying to see that the number of teachers who bring their scholars to visit the Museum for nature-study is increasing, also the interest taken by the children, some coming from the surrounding districts near Victoria.

A larger number of persons visited the Museum this year than during the past year. This, no doubt, was due to the Panama-Pacific Exposition being held in San Francisco, California. Had it not been for the terrible European war at present in progress, no doubt the number of visitors would have been nearly doubled. One of the most notable visitors to the Museum this year was Colonel Theodore Roosevelt, who passed through Victoria on Sunday, July 18th, and visited the Museum accompanied by the Premier, Sir Richard McBride, K.C.M.G., the Honourable Thomas Taylor, and the Honourable D. M. Eberts, Speaker of the Legislative Assembly. The party was shown over the exhibits by the Director, and many complimentary remarks were made by Colonel Roosevelt, which were greatly appreciated.

The Provincial Museum wishes to extend grateful thanks to the following gentlemen who have greatly assisted with identifications in their respective branches of biology :—

Identification of Birds and Mammals.—The Biological Survey, United States National Museum, Smithsonian Institution, Washington, D.C., and personally the following scientists : Messrs. H. W. Henshaw, Chief of the Biological Survey ; E. W. Nelson, Assistant Biologist, Vernon Bailey, E. A. Preble, A. H. Howell, and Jackson ; also Mr. H. C. Oberholser, who kindly identified a large series of bird-skins.

Identification of Entomological Specimens.—The Biological Survey, United States National Museum, Smithsonian Institution, Washington, D.C., and personally the following : Messrs. C. H. Townsend, Curator of Entomology, J. C. Crawford, R. P. Currie, Nathan Banks, Knab, S. A. Rohwer, and E. A. Schwarz ; also Doctors Barnes and McDunnough, of Decatur, Ill. ; Professor Raymond C. Osburn, of Columbia University ; Mr. F. H. Wolley Dod, of Calgary, Alberta ; Mr. L. W. Swett, Boston, Mass. ; and Mr. E. H. Blackmore, Victoria, B.C.

Thanks are due also to Professor John Macoun, Naturalist of the Geological Survey, Ottawa ; Mr. J. M. Macoun, Curator of the Herbarium, Ottawa ; Mr. Lawrence M. Lambe, Vertebrate Palæontologist, Ottawa, and C. F. Newcombe, M.D., Victoria.

Notes on bird migrations and observations have been received from the following : J. E. H. Kelso, M. D., and W. B. Johnson, Lower Arrow Lakes ; A. H. Palmer, New Westminster ; W. R. Carter, Deputy Game Warden, Alberni ; Rev. A. C. Mackie, Vernon ; J. A. Munro, Okanagan Landing ; and W. A. Newcombe.

The Museum has been pleased to loan specimens and data in the different branches to authorities in the larger institutions throughout the East for the purpose of assisting specialists in their work of monographing several species of mammal and bird life. Ornithological specimens have been loaned to Mr. P. A. Taverner, Ottawa, and to Mr. J. H. Fleming, Toronto; also to the Biological Survey and Smithsonian Institute, Washington, birds and mammals ; and a large collection of grizzly bear skulls to Dr. C. Hart Merriam for study and comparison, to assist him with his work on the "Grizzly Bears of North America," to be published under the Harriman Alaska Series of the Smithsonian Institution.

EXPLORATION.

During the year the Director arranged for three men to engage in field-work during the summer in widely separated districts, so as to cover as much territory as possible, and also to make the appropriation which is made by Legislature for this purpose go as far as possible, get results, and yet practise the strictest economy, which is necessary in the administration of this Department at the present time. These men were instructed to collect specimens in all branches of biology and in botany. Their respective reports show that they were successful, and I think the Museum has been more greatly benefited by this arrangement than by sending all the collectors out in one party.

Mr. E. M. Anderson, of the Museum staff, was stationed at Sahtlam, about eleven miles from Duncan, Vancouver Island, for the months of May, June, and July, and reports as follows :—

"Camp was established from May 8th to July 29th in an old log cabin built on a side-hill close to the Cowichan River and situated midway between the town of Duncan and Cowichan Lake. The latter is noted as a splendid fishing and hunting resort. The lake, being easily reached both by railway and stage, induces many sportsmen to spend a few days' sport during the open season ; this fact also applies to the Cowichan River at certain times of the year. Sahtlam Valley varies from two to six miles in width, with thickly timbered mountains (chiefly Douglas fir with considerable cedar along its base), ranging from 2,000 to 3,000 feet above sea-level, whose general trend is to the north-west, forming a continuous chain the whole length of the Island, with a gradual decline at both ends ; the highest snow-clad peaks attain an altitude of over 7,000 feet. The bottom lands, through which the Cowichan River flows, are mostly covered with willow, cottonwood, alder, fir, and cedar. Clearings and roads intercept many parts, which otherwise would have been difficult to collect in. Regarding weather conditions, considerable rain fell during May and the first week of June, after which the weather became more settled. From July 1st to the 6th it became very hot, the thermometer registering 86 degrees in the shade ; however, the heat soon modified and most delightful weather was encountered until my departure from the district on July 29th. Most of my time afield was devoted chiefly to the collecting and preserving of birds and mammals, therefore allowing but few hours daily for the collecting of botanical and entomological specimens and a few fishes, reptiles, and batrachians. The total number of specimens, including duplicates, are as follows: Mammals, 53; birds, 209; nests and eggs, 11; plants, 35 species; insects, 1,382; fishes, 17; reptiles, 29; batrachians, 11."

Mr. J. A. Munro, who collected in the Okanagan District, carried on excellent field-work, and reports as follows:—

"The field-work extended from May 1st to August 31st. With the exception of a week spent near Nahun, on the west side of Okanagan Lake, work was confined to a small area in the vicinity of Okanagan Landing. Okanagan Lake is at an altitude of 1,140 feet, and at this point is enclosed between low mountains. The timbered portions close to the lake are open and park-like, with yellow pine (*Pinus ponderosa*) predominating. Towards the summits the growth of timber is heavier, with Douglas fir (*Pseudotsuga taxifolia*) in the majority. Deciduous trees, principally quaking-aspen (*Populus tremuloides*), western birch (*Betula occidentalis*), black haw (*Cratœgus douglasii*), bitter cherry (*Prunus emarginata*), etc., are confined to the creek-bottoms and to certain well-defined draws in the mountain-side. On both sides of the lake are large areas of open range land, with many alkaline lakes and sloughs, most of them surrounded by a heavy growth of deciduous trees. This section proved a very productive collecting-ground. The muddy shores of the lakes were frequented by numbers of migrating waders, and several species of ducks were found breeding, notably Barrow's golden-eye (*Clangula islandica*) and buffle-head (*Charitonetta albeola*). During the past fifteen years the greater part of the arable land has been brought under cultivation, and with the protection and the increased food-supply afforded, there has been a marked increase in the number of summer birds. This is somewhat offset by the lessening numbers of breeding water-fowl following the drainage of the sloughs and marshes. The district described lies entirely in the Transition Zone and can be taken as typical of the Okanagan country. The months of May and June and early part of July were unusually wet for this region, there being weeks of almost constant rain, which interfered with field-work to some extent. Birds were shy and inactive and many transient species were late in arriving. This period of wet weather was followed by six weeks of dry heat that parched the vegetation on the hills and dried up many of the small lakes and sloughs. The week from June 7th to 14th was spent near Nahun, on the west side of Okanagan Lake, eighteen miles south of Okanagan Landing. Here a settler's cabin was rented, on a wide flat 2,000 feet above the lake, at an approximate altitude of 3,200 feet. This district lies in the Canadian Zone, as characterized by the dense growth of lodge-pole pine (*Pinus murrayana*) and western larch (*Larix occidentalis*). Englemann's spruce (*Picea engelmanni*) and balsam fir (*Abies lasiocarpa*) occur in isolated clumps. Such typical Canadian forms as olive-sided flycatcher (*Nuttallornis borealis*) and Columbian chickadee (*Penthestes hudsonius columbianus*) were noted. In some places the line between the Transition and Canadian Zones is very sharply defined, the yellow pine and Douglas fir ending abruptly at the summit, to be succeeded on the level top by lodge-pole pine and western larch. The creek-bottoms are heavily wooded with quaking-aspen (*Populus tremuloides*) and mountain-birch (*Betula fontinalis*), both of which grow to great size. Following is a summary of the material collected during the four months of field-work: 471 birds, representing 130 species; 21 sets of eggs; 126 mammals; 1,900 insects; 17 batrachians; 9 reptiles; 40 fishes; and 430 plants. Particular attention was paid to the collecting of moulting birds and juvenals in their various plumages, much of this material being new to the Museum collection."

Mr. C. B. Garrett collected in East Kootenay District, in the vicinity of Cranbrook, and reports as follows:—

"Field-work was started on May 5th in the district surrounding Cranbrook, which is situated about the centre of the East and West Kootenays, but at the more southerly end. The district is hilly or mountainous and runs from 2,900 to 9,600 feet in altitude. Land is not at all highly cultivated, except in very small areas, and is chiefly covered with coniferous trees. Occasionally one runs across small patches of poplars which are found chiefly in the river and creek-bottoms, accompanied by willow and other smaller shrubs. Creeks are numerous from the mountain-slopes, and numbers of sloughs and small open lakes occur throughout the district. Owing to the fact that the land is uncultivated and therefore offers no special attraction to them, the birds occur in very small numbers to a species, although the number of species is fully up to the average of other districts. From a collector's standpoint the weather was most disappointing, for out of the ninety-two days (collecting was carried on from May 5th to the end of July) it rained on forty-eight days. Material collected is as follows: Birds, 291 specimens, covering 81 varieties; mammals, 107 specimens, representing 16 species; 43 sets of eggs; 1,627 insects of various orders; also a collection of botanical specimens."

(NOTE.—It is proposed by the Director, at some future date, to publish separate pamphlets on the birds and mammals collected in these several districts.)

ANTHROPOLOGY.

Very little has been done in the way of collecting anthropological material during the past year, owing to the fact that no appropriation was made for expenditure in this department of the Museum. However, a few minor purchases were made, which, with a number of small donations, have increased the collection to a certain extent. Following is a short description of the several objects added to the anthropological collection:—

Salishan.

Cylindrical stone, pointed at both ends (? whetstone), Dallas Road, Victoria. Presented by Arthur Warren.

Perforated anchor-stone, Dallas Road, Victoria. Presented by Sir John Jackson Co., Ltd., per A. L. Elgee, C.E.

Perforated stone sinker, torpedo-shaped (? for salmon-trolling), Brentwood Bay, V.I. Presented by A. Shotbolt.

Dene.

Packing-basket, edged with quills. Purchased from F. D. Marriott.

Kwakiutl.

Skull, sugar-loaf shaped, from the beach, Cape Scott, V.I. Presented by C. J. Wilson.

Stone adze or slave-killer and child's toy of cedar-bark matting, Quatsino. Purchased from Jum Killchait.

Haida.

Carved stone maul of white quartzite, Graham Island, Q.C.I. Presented by Pte. G. S. Mayer, 48th Battalion, C.E.F.

Carved slate totem-poles (7) and carved slate dish. Purchased from D. Cochrane, Q.C.I. (NOTE.—Stories accompanying these slate carvings are appended to this list.)

Tsimshian.

Lynx-head mask, Metlakatla. Purchased from C. C. Perry.

Kootenaian.

Sling pouch, fringed, embroidered in beads in front, two-arrows design, blue on white ground.
Pair of moccasins, top beaded, native design.
Basket.
Pouch, front all beaded, two-hands design.
Large abalone, perforated.
Nez Perce bag.
Wampum necklace, white and green.
Head-scratcher.
Fish-hook.
Stone pipe.
Two eye-teeth of ? on skin string.
The above Kootenaian specimens purchased from Mrs. J. Gill.

PLATE II

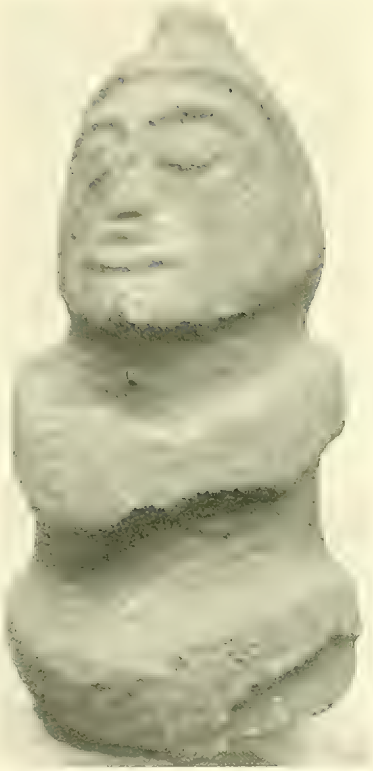


Fig. 1. Carved sandstone medicine-dish, property of the Hon. Mr. Justice Martin. Museum cast, Catalogue No. 2875.

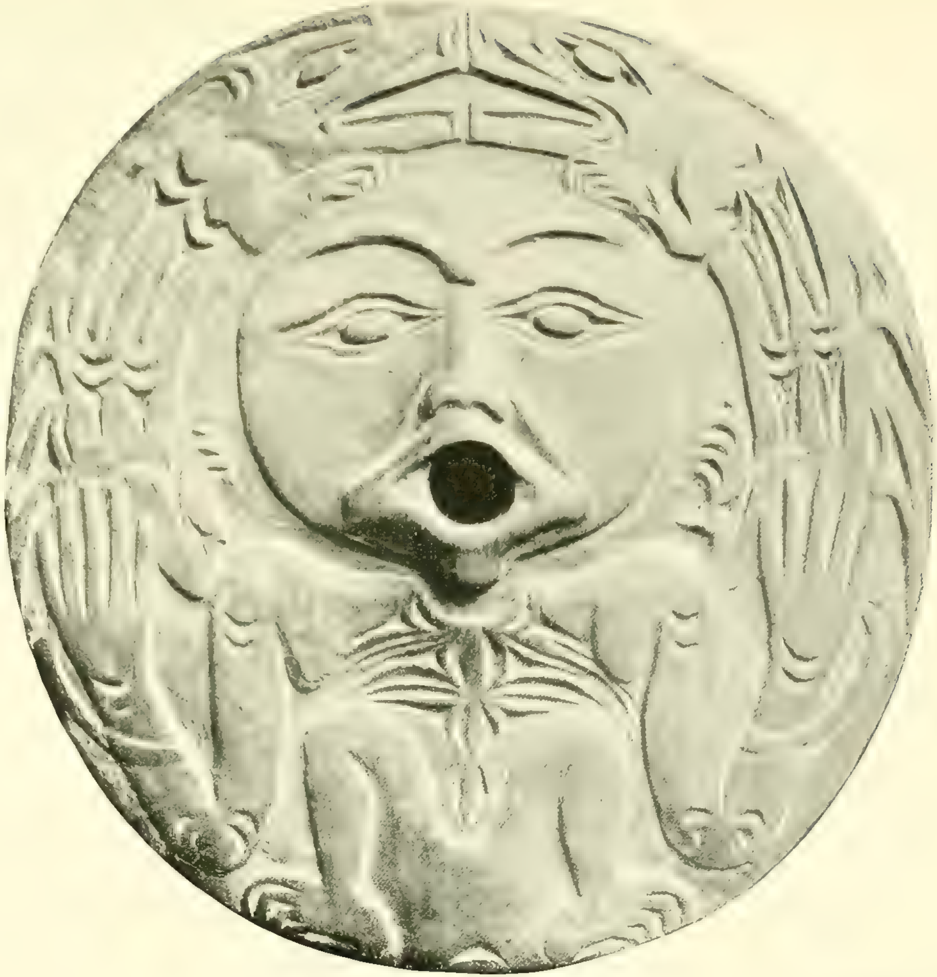


Fig. 2. Spindle whorl of maple, convex surface, 9½ inches diameter. Collected 1908, Beecher Bay (Salishan, Coast). Catalogue No. 1179.

Stories accompanying Slate Totem-poles from Queen Charlotte Islands.

No. 2866. Nahnasimgh was a mighty warrior; one day when his wife was on the beach, the King of the Whales saw her and carried her off. Nahnasimgh followed them to the whale country, where he succeeded in rescuing her, but was hotly pursued by the whales. The fugitives ran until they met the Giant Mud Crane, who hid them in his breast feathers. When the whales came to the crane they asked him if he had seen any one, and he said that he had not. So the whales went another way and Nahnasimgh and his wife went home and lived happily ever after. Moral: It is quite right to tell lies when your friends are in trouble. (Pole No. 2866 shows the Crane, Nahnasimgh, his wife, with the lip-jewel and bracelets of a lady of quality, and the Whale.)

No. 2867. Shows the wife of Nahnasimgh being carried off, holding the whale's back fin.

No. 2868. The Beaver's Lake. Once upon a time all the fish belonged to the Beaver, who kept them in a lake behind his house. The Raven (who made the world out of what he could steal and became the ancestor of the Haida Indians) wanted the fish, so one day he dressed up as a poor man, met the beaver one evening, and asked for a night's lodging. The Beaver had just come home from a gambling-feast, and was feeling pretty good, so he took him in. After supper the Beaver went to sleep and the Raven stole out of the back door, picked up the lake in his beak and flew off with it. He gave it to the Indians. Moral: It is quite right to steal for your friends. (No. 2868 shows the Raven dressed as a poor man, then the Raven carrying the lake with the fishes in it, and the Beaver.)

No. 2869. The Bear saw the above, and told it. The Beaver had to take to chewing a stick for a living, and has done so ever since. The face on the tail seems to indicate that the Beaver had human intelligence at that time.

No. 2870. The Raven and the Fisherman. The Raven when he was hungry used to dive down under the water and steal the bait off the Fisherman's hook. Once he got the hook caught in his beak, and the Fisherman, thinking he had caught a fish, pulled in the line so hard that the Raven's beak broke off. The Fisherman was much astonished to find the Raven's beak on his hook. As for the Raven, he had to go with his face hidden until his beak grew again. Moral: The best of us get into trouble sometimes.

No. 2871. Illustrates the story of the Raven's Midnight Feast. The Raven was visiting some Indians. In the night when all were asleep, except a half-human-half-whale creature who saw and told the story, he stole out and soon came back with something under his wing. He scraped the fire aside and dropped his burden in the hot ashes. When it went off with a "pop" he ate it. Then he went out again and did the same thing. This happened many times. In the morning it was found that all the other inhabitants of the village had lost one eye each. Moral: Feed your guests well so that they won't get hungry in the night.

No. 2872. The Raven in Disguise. One time the Raven disguised himself as a woman, and came to live with the Indians. After living with them for some time they saw him eating fish on the beach, so they recognized him and he flew away. (No. 2872 identifies the Raven as the great one, by showing his partner, the Eagle, who could eat a whale.)

No. 2873. Kholqu'haludi. Kholqu'haludi was a little boy who was always late for his meals. One day he came in too late for dinner and his mother would give him nothing but a piece of dried salmon. He went down to the beach to eat it, and dipped it into the water to soften it. The King of the Salmon saw him and carried him off and turned him into a salmon. The next year when the salmon began to run, Kholqu'haludi's father caught a fine big fish in the stream and took it home to eat. When he started to cut its head off, just inside the skin his knife struck copper. He remembered that the boy had worn a copper ring around his neck, so he took the salmon outside and laid it on the ground under the drip of the roof. As the water fell on it the salmon skin sloughed off, revealing Kholqu'haludi inside. The boy grew up to be a great medicine man, but he always had a sore neck where his father had started to cut the salmon's head off. (This plate shows Kholqu'haludi emerging from the salmon skin, holding in his hand the short wand used by Haida medicine men.)

MAMMALS.

The collection of mammals on the first floor is now so crowded that it is impossible to adequately display them. It has been the intention to carry on the work started several years ago, in grouping the different species and displaying them with painted backgrounds illustrating the natural surroundings which they inhabit, but this has been postponed indefinitely until more space is acquired, as it takes considerable space to do this class of work. The Department already has in storage a large number of mammals for this work, namely: Moose (*Alce americanus*), three species of caribou (*Rangifer montanus*, *osborni*, and *dawsoni*), mule-deer (*Odocoileus hemionus*), white-tail deer (*Odocoileus virgultus*), panthers (*Felis oregonensis*), wild-cats (*Lynx fasciatus*), grizzly bear (*Ursus horribilis*), gray wolves (*Canis occidentalis*), sea-lions (*Eumetopias stelleri*), and many others. The Department was also successful in securing another specimen of the white bear (*Ursus kermodei*), a male in perfect fall pelage, killed on Gribble Island in L. 53, 129 W.L. A large collection of small mammals is being studied at present, and a number of specimens representing many species are being prepared for exhibition. This latter branch has not been very well represented until recently; it is difficult with a small staff to pay particular attention to all branches of museum-work, and the public does not take as keen an interest in small mammals as in the display of big game.

The Director had a very fine collection of heads of the big game of the Province mounted for exhibition in the offices of the Agent-General in the British Columbia Building, Regent Street, London, England.

INVESTIGATION OF REPORTED DISEASE IN THE BLACK-TAIL OR COLUMBIAN COAST DEER (*Odocoileus columbianus*).

For a number of years the deer of Texada Island have been reported by settlers and others in the vicinity of Vananda to be infested with some disease. The Director, accompanied by Drs. S. A. K. White and Ansen Knight, Veterinary Surgeons of the Live Stock Branch, Department of Agriculture, undertook to carry on an investigation in regard to this reported disease. In November, 1915, a trip was taken to Vananda, Texada Island, were three deer were secured for examination. Upon being dissected, two of these animals were found to be in a healthy condition; in the third, however, the liver was found to be badly affected by a fluke-worm. Settlers of this Island report that about every third deer is affected in this manner with what they term "hard or black livers." This term comes, of course, from the black fluid that is found in the parts affected by the fluke. They also advise that numbers of deer are killed and never taken from the bush, being considered unfit for food. Later, on November 22nd, the Director received from Mr. W. A. Embleton, of Vananda, another liver which was in a very bad condition; this was taken from a smaller deer than the one which we had dissected while there. This liver was forwarded to Dr. S. H. Hadwen, D.V.Sc., Dominion Pathologist at Agassiz, for examination. Dr. Hadwen reported on December 2nd that he had taken from this liver eighteen large flukes which he identified as *Fasciola magna*, two of which he sent to Dr. Ransom, of Washington, for further determination. This appears to be the first actual record of this parasite having been discovered in the Coast deer; the particular fluke being known in sheep raised on the Fraser River as *Fasciola hepatica*. Later, in January, 1916, another trip was arranged to Texada for further knowledge regarding this fluke. Drs. White, Hadwen, and Mr. Whittaker, of the Museum, composed the party which was taken to the island by the launch "R. V. Skinner," kindly loaned for the occasion by the Forestry Department. On this trip only one deer was secured, and this was found to be in a healthy condition, with the exception of three tapeworms. (These resembled *Cestoidea tenuicollis*. Dr. Hadwen is having this verified.)

It is impossible at the present time, until further investigation is carried on, to make any suggestions as to how to get rid of these parasites.

DESTRUCTION OF SEA-LION (*Eumetopias stelleri*).

On April 8th, 1915, the attention of this Department was called to the fact that the Fisheries Department of the Federal Government at Ottawa had set aside the amount of $6,500 for bounties of $2 each to be paid on the lips of sea-lions killed along the Coast of British Columbia. The Director of this Department immediately took the matter up with the Honourable J. D. Hazen, Minister of Fisheries at Ottawa, asking that the payment of bounties for the killing of sea-lions on this Coast be suspended, and suggested that, as there was a diversity of opinion on this matter, a thorough investigation be made in regard to the life-history of this mammal by the Ottawa Fisheries Department, not only having fisheries experts on the Board, but other biologists. Later Mr. F. J. Desbarat, Deputy Minister of Naval Service at Ottawa, wrote that it had been arranged to have the Biological Board of Canada investigate

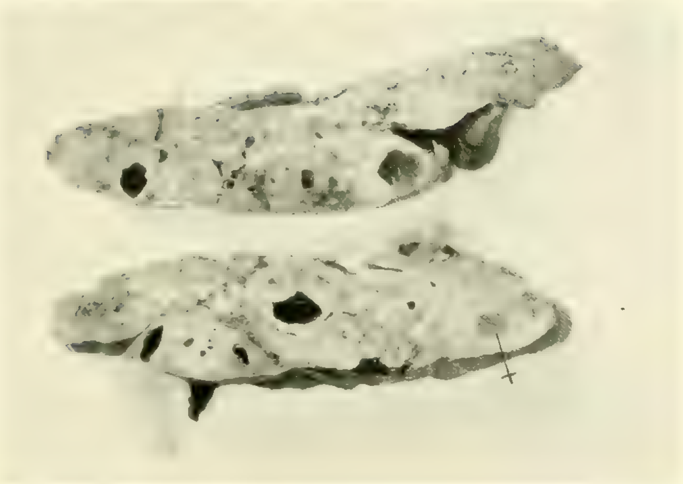


Fig. 1. Liver of Black-tail or Columbian Coast Deer (*Odocoileus columbianus*), showing the effect of liver-fluke (*Fasciola magna* Bassi). Note enlarged ducts, and fluke cut across at point "x."

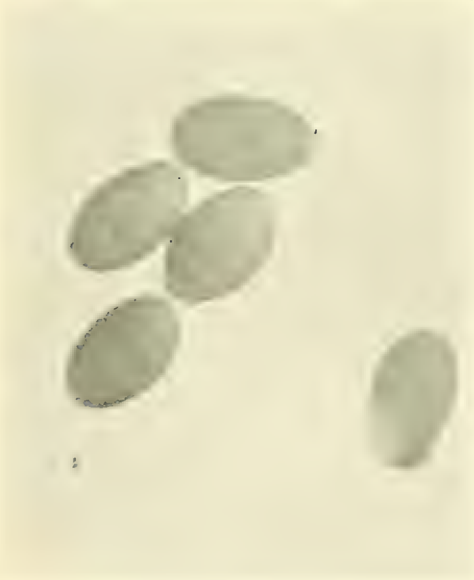


Fig. 2. Measurement of eggs of *Fasciola magna*. Length, 140 micro-mm.; width, 100 micro-mm.

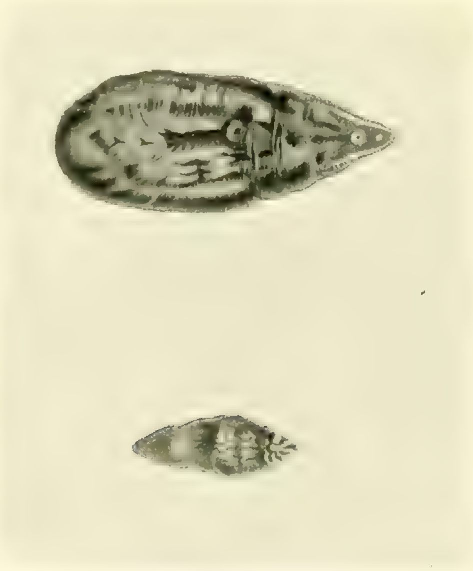


Fig. 3. Average length of *Fasciola magna*, 45.4 mm.; width, 18.5 mm.

(*See* page 12.)

this matter during the summer, and that to this end a special committee had been formed. Dr. A. B. McCallum, who is Secretary of the Board, arrived in Victoria towards the end of July to make arrangements for a meeting of this special committee, which is composed of C. F. Newcombe, M.D., Chairman; Dr. McLean Fraser, of the Biological Station at Departure Bay; and W. Hamar Greenwood, Esq., of Vancouver, Secretary; to carry on investigations for the Biological Board throughout the summer. Until this special committee hands in a report of their findings it is impossible to say what will be done in the matter.

It will be seen by the following data received from Mr. F. H. Cunningham, Chief Inspector of Dominion Fisheries, New Westminster, dated August 10th, the amount of damage and the ruthless destruction that has been carried on at the sea-lion rookeries on the Coast:—

Bounties paid.

Year.	Hair-seals.		Year.	Sea-lions.	
	No.	Amount.		No.	Amount.
1913	....	....	1913	....	....
1914	2,237	$7,829.50	1914	....	....
1915	750	750.00	1915	2,875	$5,750.00
Totals	2,978	$8,579.50	Totals	2,875	$5,750.00

Further information was received from Mr. J. A. Pauline at Bella Bella, to whom the Director wrote, having heard of certain persons in that vicinity killing large numbers for bounty. Quoting from Mr. Pauline's letter: "The largest lot we received here were shot by Jno. Wootten and Lorne Williams (the last man is an Indian), they shot three days and brought to Bella Bella over 1,600 noses, and killed easily half that amount to get on the islands, which were lost in deep sea and not recovered. Below is a list of those who worked seals and sea-lions this year:—

"*Sea-lions.*—Killed outside of Price Island, on rocks, Indian of China Hat killed to show noses 123, and half the number sunk.

"*Hair-seals.*—Bella Bella Indians were after hair-seals, and killed for money about 639; number killed would be easily 1,000.

"J. Wootten and Indian shot at Queen Charlotte Sound, in the groups you name (Sea Otter Group, Pearl Rocks, and Watch Reef), and in three trips, costing $78 in launch got cheques as follows: $40, $684, $98, $2,348; total $3,170."

On making further inquiries, I find that one man presented a claim for 1,173 sea-lions from one rookery; of this number, 800 representing about 75 per cent. were pups probably not more than a few days old. The pups are born about the middle of June. There are only three main rookeries along the Coast, all north of Vancouver Island and south of the southern end of the Queen Charlotte Islands—namely, Cape St. James Group, Sea Otter Group, and the Cape Scott Islands. (*See* Report of Commissioner of Fisheries of British Columbia, 1913, page 131, "Sea-lions on the Coast of British Columbia," by Dr. C. F. and W. A. Newcombe.)

I am thoroughly convinced that placing a bounty of $2 per lip on each sea-lion taken will in a very short time rid our Coast of this life entirely, as they are mammals which do not migrate far north and south along the Coast, but are to be found on hauling-out and feeding grounds not far distant from the main rookeries. I know from personal experience, having visited some of these rookeries, that if a man or men go there with the intention of killing these mammals for bounties, that for every matured specimen they shoot and secure they will lose at least six, as the animals when shot fall off the rocks and disappear almost immediately beneath the surface of the water and seldom float. Further, they are easily frightened off the rocks and come within 30 or 40 yards of the boat, roaring constantly, and are an easy mark for an ordinary shot. Landings can be made on almost all of the rookeries in moderate weather and the poor puppies slaughtered indiscriminately. If it is found that the sea-lions do the damage which the canners say, it would be far better for their numbers to be kept down by the Government under Government supervision, so that there will be no unwarranted waste of life. True it is that at the present time they do not stand very high in commercial value, but there is a company in Vancouver which in the year 1914 undertook to go out to Pearl Rocks and Watch Reef, in the Sea Otter Group, about seven miles south-west of Cape Calvert, in Queen Charlotte Sound, with the object of starting a new industry on this Coast. It appears that this firm did not make a very great success of their venture on accouut of starting rather late in the year, and experiencing very heavy weather; but the leather made from the sea-lion skins has been pronounced by experts to be excellent glove material. It seems a pity to clear out these herds, which at some time, with a certain amount of protection and a little judgment, could possibly be made of great commercial value.

One further point in this matter I would like to mention is the fact that possibly the sea-lions of the Coast of British Columbia should really come under the jurisdiction of the Provincial Government, being not migratory in their habits, and being born and reared on the islands along our shores.

I might also state that this matter has been taken up by Mr. Madison Grant, Chairman of the New York Zoological Society, who happened to be visiting in Victoria last July, and made inquiries regarding a report in a New York press of the bounties paid on sea-lions along this Coast. Mr. Grant was surprised to hear of this being a fact, after the investigation which had been carried on some years ago by Professor L. D. Dyche, of the University of Kansas, under the Washington Biological Department, regarding the sea-lions of the California Coast. (*See* Report of the United States Fisheries Commission, 1902, part 28, page 111.) Mr. Grant also remarked that the matter of the Steller sea-lions would be taken up by the Zoological Society this winter.

Very little has been written with regard to the life-history of this mammal, and it is hoped that the investigation will be carried on until definite conclusions are formed.

BIRDS.

The bird collection displayed in the exhibition cases on the second floor of the Museum received attention during the early part of the year, being relabelled and brought up to date as nearly as possible, with the correct data on each label. A large number of specimens were added to fill in gaps in several of the families, particularly birds that had been collected in Atlin during the past two seasons, and which were new to the Museum collection. During the past collecting season Mr. E. M. Anderson, of the Museum staff, added 209 bird-skins, representing 76 species, collected on Vancouver Island; in the Okanagan District Mr. J. A. Munro collected 471 birds, representing 130 species; and in the East Kootenay, near Cranbrook, Mr. C. B. Garrett collected 291 birds, representing about 80 species. These skins have been added to the reserve series which is kept for study, and which is now a large representative collection of skins from all parts of the Province. This series shows the changes of moult in the different seasons, and also contains a large number of juvenals. The study collection represents a great deal of work, and considerable time has been spent in the systematic arrangement of the different families and species. Further work on the study collection will be done as soon as additional sectional storage cases are made. These cases are made of cedar throughout, with drawers and air-tight doors on the front, being moth- and dust-proof, and have been found very satisfactory and more economical as to space than the old cabinet drawers. The osteological series of sternum bones of birds has had to be taken from the exhibition cases and placed in storage, so as to provide space for the extension of the oological series, which seems to be more attractive to visitors, especially children, as many of the sets of eggs are exhibited in their nests, and therefore are instructing and educating both to young and old. This arrangement of the series of eggs was carried on in the early spring, the specimens being labelled, giving full data, number in set, incubation, material nest is composed of, locality, and date. This series now represents about 250 species.

BARE ISLAND BIRD RESERVE.—Following up the matter referred to in last year's report—namely, the obtaining of Bare Island (known as Indian Reserve No. 9, Saanich Tribe) to be kept as a permanent bird sanctuary for the preservation of bird-life on this Coast—arbitration has as yet been impossible owing to financial reasons. However, the Department is glad to report that the Honourable H. E. Young, M.D., at that time Provincial Secretary, on June 9th arranged through Mr. Duncan C. Scott, Deputy Superintendent-General of Indian Affairs at Ottawa, giving the Provincial Museum authority to place a guard on the island in charge

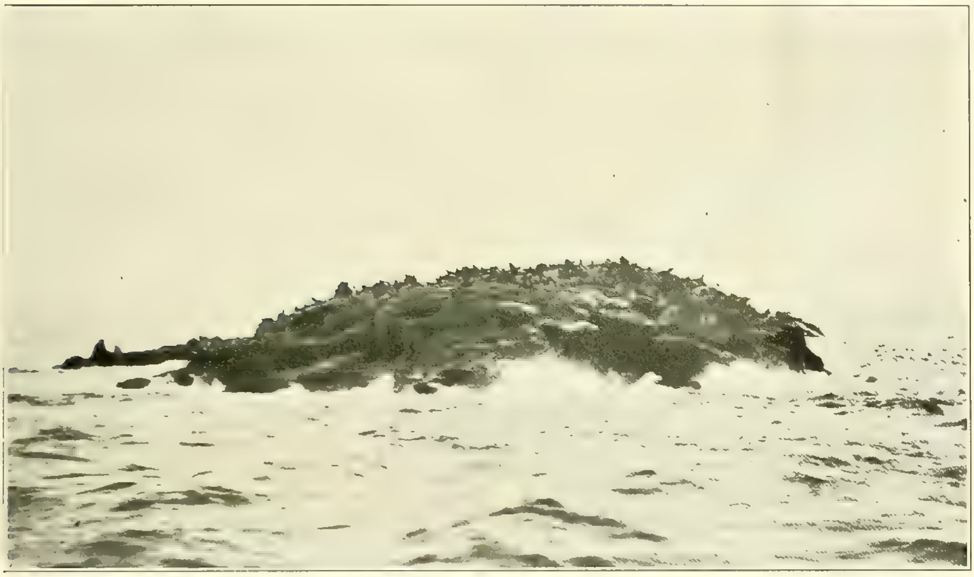


Fig. 1. Sea-lions on Pearl Rocks, south-west of Cape Calvert, Queen Charlotte Sound, B.C. June 21st, 1913.

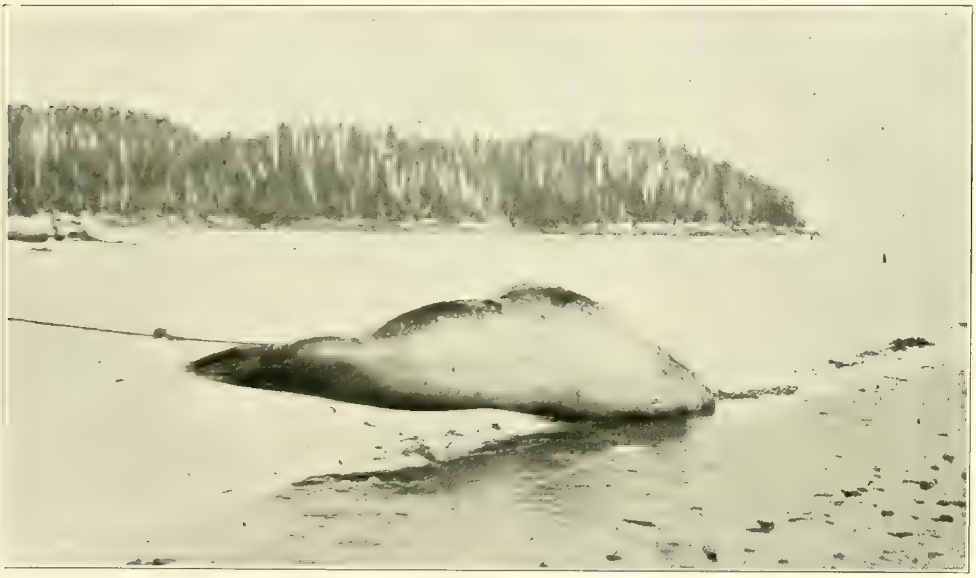


Fig. 2. Large Sea-lion killed on Pearl Rocks and towed to Grief Bay, back of Sorrow Island, June 21st, 1913. Approximate weight, 2,100 lb.
(*See* page 14.)

of the bird-life during the nesting season. Mr. W. B. Anderson was appointed warden of the island, and while stationed there also made a small collection of marine life and botanical specimens. Mr. Anderson reports as follows:—

"In accordance with instructions, on June 15th I proceeded to Bare Island, in the Haro Strait, to act as warden and collector in the interests of the Museum.

"The glaucous-winged gull, the only species which breeds on this island, had commenced to lay a few days before the date of my arrival, as of perhaps fifty-eight nests noted on the 16th and 17th a few had three eggs—the maximum number—and a very few birds had begun to sit on the 17th. The total number of nests noted up to July 10th was 352. Upon this date I stopped counting these nests on account of there being so many sitting birds which would be disturbed at a critical stage of incubation. From the number of birds congregated on the island and outlying rocks, I estimate that not less than 450 bred this year on the island, a small number compared with what bred there twenty years ago, but still enough for nucleus of a large breeding stock if afforded adequate protection. The incubation period of these birds I have estimated to be about twenty-five days; the first-sitting bird's eggs marked on June 16th hatching on July 10th and 11th.

"The pigeon guillemot breeds on the island in fair numbers; I judge there were 200 nests there this year, as well as some on outlying rocks and on Halibut Island, Jones, Gooch, and other rocky islands adjacent. Though laying but two eggs, these are deposited in such cunningly concealed positions among the broken rocks and deep crevices, without any nest, that their extinction will be harder than in the case of the gulls, who make a big nest, plainly visible, in most exposed places. The incubating period of the guillemot is practically the same as that of the gull, the young being jet-black when hatched, the feet even lacking the brilliant scarlet colouring showing in the old of these interesting little birds. To make up for the lack of colour, however, the young are possessed of most pugnacious tempers, kicking, squealing, and biting very vigorously when drawn from their nests.

"Fifty cormorants, I judge, nest on the high cliffs on the west side of the island, laying from three to five eggs. These birds get quite used to a human being moving about near the nests, provided one goes quietly and without unduly exciting movements. The young, which emerge in twenty-six days, are shiny black when first hatched, apparently sparsely covered with black bristles. In this stage they are very reptilian in suggestion.

"During my stay on the island I noticed but three pair of puffins. These birds used to be plentiful, but shooting and other causes have brought about their almost entire disappearance from these islands. It is said that they breed in fair numbers on Skipjack Island, over the International Boundary from Bare Island.

"The birds here mentioned comprise the entire breeding sea-colony of the area. The rare black or Bachman's oyster-catcher, in former years plentiful, has disappeared. The little auklet, said at one time to have made this island its breeding-ground, has also deserted it for other parts. The causes for these diminutions and desertions is plainly evident: human beings—whites, Indians, and Japanese—carrying away the birds' eggs and young.

"As a gull, after laying a first set of eggs and having them taken, lays only two the second time, it follows that the stock of young is diminished; and when the second laying is removed it is probable that no more will be laid, or if by chance there are, the hatching will be so late that it is doubtful if the young will be strong enough to survive the rigours of the autumn. The practice of shooting on the grounds cannot be too strongly condemned. To say nothing of shooting during nesting season, winter shooting should also be rigidly prohibited.

"During the autumn and winter months, even into late spring, the Canada goose and laughing goose frequent the rocky Gulf Islands, and, judging from the number of blinds built there, Bare Island seems to be a favourite haunt of these birds. In the interests of them alone a sanctuary should be provided, for the continual harrying of the flocks by sportsmen all over the Province leaves them scant opportunity to rest their weary wings and to glean a hasty meal. Apart from this, the strictly maritime birds of which I have already written are kept away from the island, and continual driving away, even outside of the nesting season, has a pronounced tendency to cause these birds to seek more secluded and therefore more distant spots in which to rear their young.

"Another reason for shooting on the island is that there are a number of rabbits there. Some years ago a very ill-advised person turned out some tame rabbits on several of the Straits islands, Bare Island being among them. The animals have increased and they are now an incentive to visiting hunters. A further evil in connection with these animals is their taking possession of the holes and crevices formerly occupied by puffins and guillemots, and driving these birds from many of their old breeding-haunts entirely. No time should be lost to exterminate the pests so as to allow the puffins to regain possession.

"Of other mammals on the island, a species of deer-mouse seems to be the only one. It is apparently somewhat different from the Mainland and Vancouver Island forms. These mice are quite harmless in relation to bird-life.

"Many fine flowering plants and shrubs adorn the island, especially in the early spring; one of the most notable, because of its rarity on the Pacific Coast, being the choke-cherry, which grows out of the dry, earthless crevices of the rock.

"Marine life is well represented about the reefs and pinnacles adjacent. On South Reef there may be found fine specimens of the large rock-pecten, sea-urchins, and a variety of smaller mollusks and crustaceans. I do not doubt that a large and most interesting collection could be made of marine life with proper appliances.

"I left the island on July 28th, having stopped there continuously, except for short trips occasionally to outlying rocks and islands. During the six weeks' sojourn several parties of whites arrived seeking to explore the island, and as they had no permits to land, I refused them according to instructions. Two parties of Indians landed, and one of these began robbing the gulls' nests. They, however, desisted when I spoke to them, after surreptitiously concealing the eggs they had gathered. These I afterwards found and photographed."

REPTILES AND BATRACHIANS.

This branch of the collection has been practically at a standstill for a number of years. Quite a number of specimens have been secured during the last two years' field-work. It is hoped to be able to carry on this work through the coming year, and have a number of the specimens already on hand sent to authorities for proper identification.

FISHES.

A most unusual visitant to this Coast was a sunfish (*Mola mola*) which was captured at Ucluelet, on the west coast of Vancouver Island, by some Indians fishing about two miles off-shore on July 14th, and presented to the Museum by Second Officer E. F. Jordan, of the S.S. "Tees." This appears to be the first record of this species north of San Francisco, California.

Another straggler, a white sea-bass (*Cymoscion nobilis*), was taken in the salmon-nets off Port Alberni, Barkley Sound, on the west coast of Vancouver Island, by Messrs. Butterfield and Mackie, and presented to the Museum through Deputy Game Warden, W. R. Carter, of Alberni. This is the third record of this fish having been taken along this Coast; the first was taken some years ago in Sooke Harbour by Sir Clive Phillipps-Wolley, and the second in Todd's traps at Sherringham Point, Strait of Juan de Fuca.

A number of smaller fishes have been added to the collection by our field collectors. These specimens have not, up to the present time, been studied and systematically arranged.

ENTOMOLOGY.

During the past three years much greater attention has been paid to this branch of natural history, with the result that the Museum collections have been enriched by large numbers of desirable specimens, many new to British Columbia and several new to science. The trip to Atlin undertaken by Mr. E. M. Anderson, of the Museum staff, in 1914 was very successful in this respect. Naturally a practically virgin country and one so little traversed by the entomologist would be expected to produce good results, and these expectations were fully realized by the quantity and quality of the material collected, over 2,000 insects being taken during the three months.

Amongst the butterflies taken on this trip were several very rare ones, and many new to the Province, viz.: *Parnassius smintheus var. nanus*, Neu.; *Papilio machaon var. aliaska*, Scudder (this is a very interesting and rare capture; very little is known about this insect, and thus far it has been taken only in Alaska and is still very rare in collections); *Eurymus hecla var. glacialis*, McLachlan (this is an exceedingly rare species, its habitat being Arctic America and Arctic Europe); *Brenthis triclaris*, Hub., a high-altitude species; *Brenthis polaris*, Bdv., an inhabitant of Arctic America; *Brenthis frigga* varieties *saga*, Kallen, and *improba*, Butler, the latter being still very rare in collections; *Erebia disa var. mancinus*, Dby., a beautiful

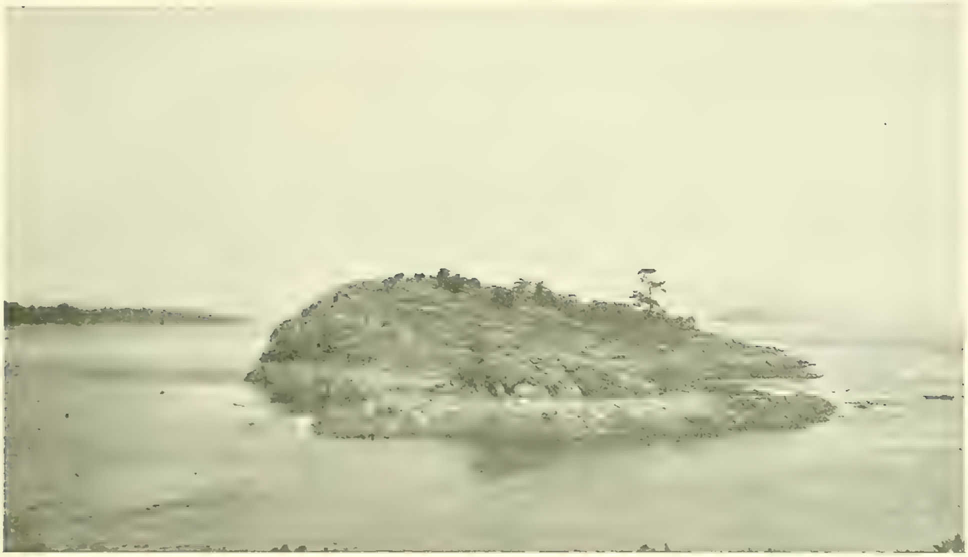


Fig. 1. Bare Island Bird Sanctuary, Haro Strait, near Sidney.

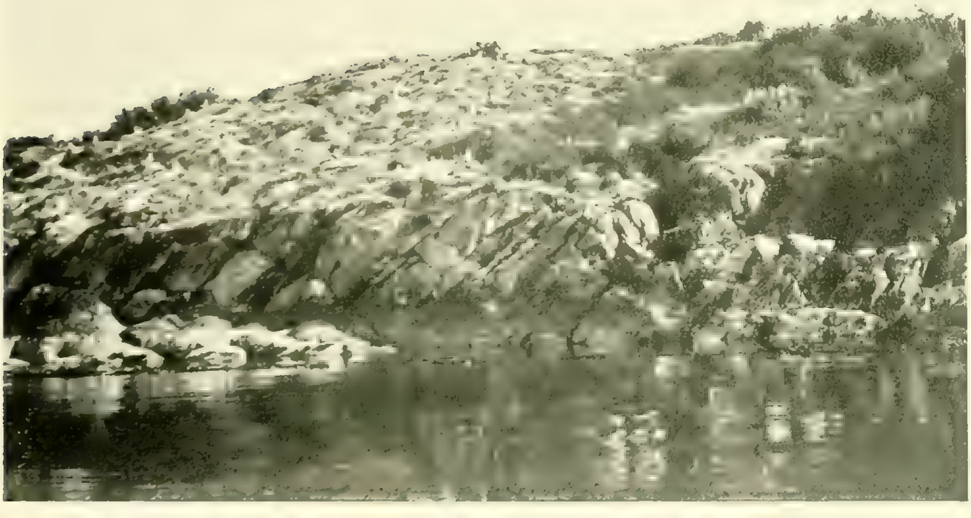


Fig. 2. Glaucous-winged Gulls nesting on Bare Island.

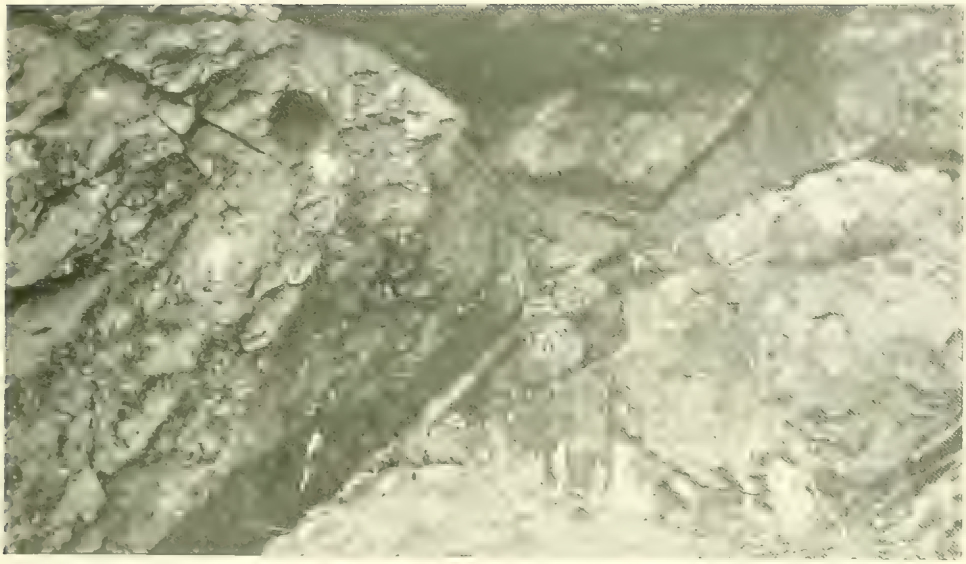


Fig. 1. Young Glaucous-winged Gulls on Bare Island, showing protective colouration.

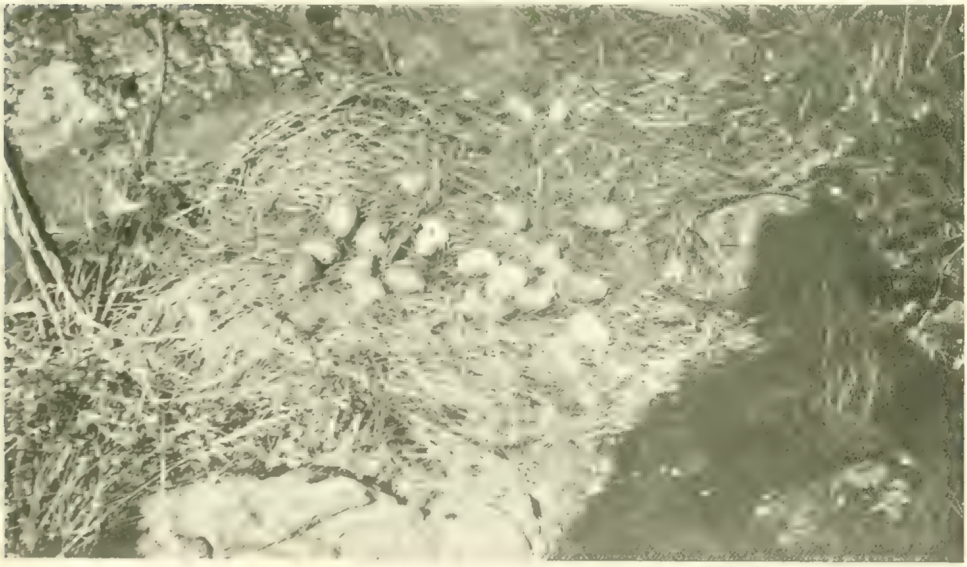


Fig. 2. Mass of egg-shells of the Glaucous-winged Gull. These eggs were dropped by Indians when caught robbing the Gulls' nests.
(*See* page 15.)

PLATE VII.

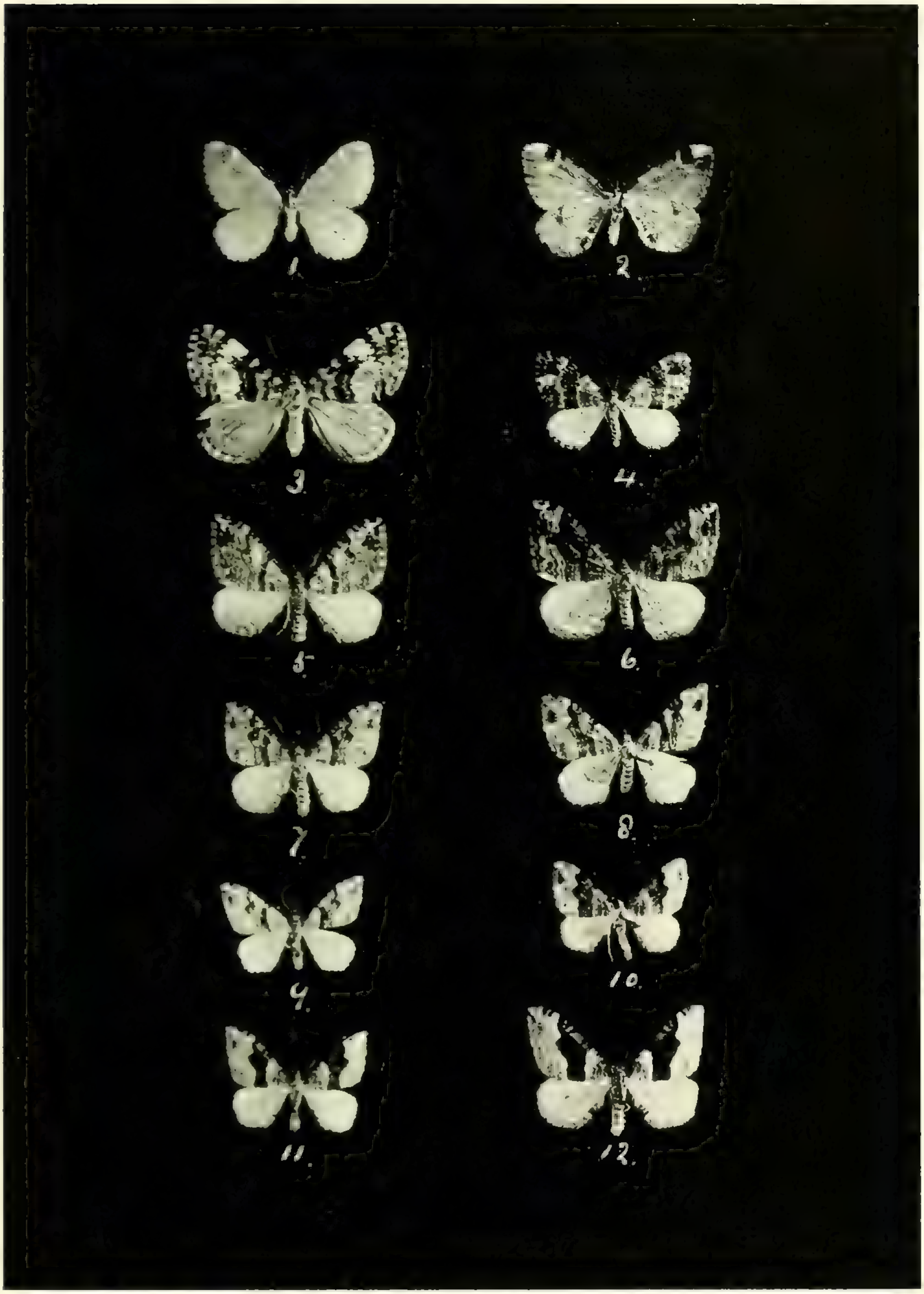
Geometridæ new to Science.

(Taken by E. H. Blackmore at Victoria, B.C.)

Fig. 1. *Stamnodes blackmorei* Swett. (Paratype male.)
Fig. 2. *Stamnodes blackmorei* Swett. (Under side.)
Fig. 3. *Hydriomena speciosata* var. *ameliata* Swett. (Type female.)
Fig. 4. *Hydriomena grandis* var. *saanichata* Swett. (Paratype female.)
Fig. 5. *Petrophora defensaria* var. *giganticaria* Swett. (Paratype male.)
Fig. 6. *Petrophora defensaria* var. *giganticaria* Swett. (Allotype female.)
Fig. 7. *Petrophora defensaria* var. *conciliaria* Swett. (Paratype male.)
Fig. 8. *Petrophora defensaria* var. *conciliaria* Swett. (Allotype female.)
Fig. 9. *Petrophora defensaria* var. *thanataria* Swett. (Paratype male.)
Fig. 10. *Petrophora defensaria* var. *thanataria* Swett. (Paratype female.)
Fig. 11. *Petrophora defensaria* var. *mephistaria* Swett. (Paratype male.)
Fig. 12. *Petrophora defensaria* var. *suppuraria* Swett. (Paratype male.)

(*See* page 18.)

PLATE VII.



form which only occurs in high altitudes and in the extreme north; *Cœnonympha kodiak*, Edw., two specimens were taken (this I believe is new to Canada, its previously recorded locality being Alaska); *Œneis uhleri*, Rkrt., a Rocky Mountain species; *Œneis norna var. taygete*, Hub., a large series of this butterfly taken (this species was first recorded from Labrador in 1824); *Rusticus scudderi*, Edw. (this is closer to the typical form than the Eastern specimens going under this name); and *Hesperia centauræ*, Rambur (this latter species occurs in the North Atlantic States and in Europe).

Moths were not so plentiful, noctuids being especially scarce; the long days with little or no darkness of this region in the summer-time making the usual attractions of "light" and "sugaring" of very little use. However, Mr. Anderson took several specimens of *Anomogyna lætabilis*, Zett., which is an exceedingly rare noctuid moth hitherto only recorded from Labrador. These are the only known North American specimens in Canada at the present time. The specimens were taken flying at dusk on dates ranging from July 6th to 15th. This species also occurs in Arctic Europe, where, however, it is still very rare. The following noctuids taken are also new to the Province: *Hadena morna*, Streck; *Mamestra sutrina*, Grote; *Anarta cordigera*, Thunb.; *Anarta richardsoni*, Curtis; and *Autographa orophila*, Hampson.

Amongst the Geometridæ a large number of very desirable species were captured, including the following which are new to British Columbia, viz.: *Eustroma destinata var. lugubrata*, Mosch., a very handsome insect and quite rare; *Rheumaptera hastata var. hastulata*, Hub.; *Rheumaptera luctuata*, D. & S.; *Petrophora circumvallaria*, Taylor (this species was described from specimens taken at Calgary, Alberta); and *Leptomeris frigidaria*, Mosch., an inhabitant of Arctic America.

Good collections in Coleoptera, Hymenoptera, and Diptera were made, many of which still await classification and identification.

During the past season a quantity of material in this branch has been collected by Mr. E. M. Anderson in the Sahtlam District, Vancouver Island (1,382 specimens), Mr. J. A. Munro at Okanagan Landing (1,900 specimens), and Mr. C. Garrett at Cranbrook (1,627 specimens).

Amongst the many good things taken by Mr. Anderson the following Noctuidæ are rare: *Feralia columbiana*, Smith; *Rhynchagrotis niger*, Smith; *Noctua calgary*, Smith; *Rancora solidaginis*, Behr.; *Euchalcia putnami*, Grote; and *Eosphoropteryx thyatiroides*, Gue. *Mamestra radix*, Walker, is new to Vancouver Island, and the following are new to British Columbia: *Autographa bimaculata*, Stephens; *Melalopha albosigma var. specifoca*, Dyar, belonging to the family Notodontidæ; and *Albuna pyramidalis var. montana*, Hy. Edw., a member of the Sesiid group. In the Geometridæ, whilst nothing new was taken, there nevertheless were some very desirable species, of which the following are worthy of mention: *Eupithecia perfusca*, Hulst; *Dysstroma occidentalis*, Taylor; *Hydriomena multiferata*, Walker; *Chlorosea nevadaria*, Pack.; *Aplodes darwiniata*, Dyar; *Euchlaena mollisaria*, Hulst; *E. pectinaria*, D. & S.; and *Metanema quercivoraria*, Gue. It is well to note that several specimens of that pretty little butterfly *Pamphila palaemon*, Pall., were taken, a species which is rapidly becoming extinct on the southern portion of Vancouver Island.

The material collected by Mr. Munro, while large in quantity, did not produce many rare species, the following Noctuidæ being most worthy of note: *Hadena allecto*, Smith; *Rhynchagrotis trigona*, Smith; *Agroperina pendrina*, Smith; *Euxoa obeliscoides*, Gue.; and *Graphiphora curtica*, Smith. However, one variety new to British Columbia was taken—*Platyprepia virginalis var. guttata*, Bdv., a moth belonging to the Arctiidæ family.

Mr. C. B. Garrett, of Cranbrook, also added four more species to the list, viz.: *Agroperina lineosa*, Smith; *Mamestra canadensis*, Smith, previously recorded from New Brunswick; *Syneda seposita*, Hy. Edw.; and *Ceryconis ortus*. Amongst the Geometridæ taken by Mr. Garrett there were three species new to the Province, viz.: *Leptomeris ancellata*, Hulst; *Diastictis occiduaria*, Packard; and *Metanema determinata*, Walker (this latter an inhabitant of the Atlantic States). In addition to these, the following desirable species were taken: *Entrepia multivagata*, Hulst; *Marmopteryx marmorata*, Packard; *Euchlæna johnsonaria*, Fitch; and *E. astylusaria*, Walker.

Mr. W. A. Newcombe, of Victoria, B.C., while in the Chilcotin District this past summer took five specimens of *Basilarchia arthemis*, Drury. This is a very interesting record, as it definitely settles the fact that this butterfly does occur in British Columbia. Although this species has never been admitted to the list, it has been a debatable subject for some years as to whether it did or did not occur in the Province. Its habitat is the North Atlantic States, but it is also taken in the three Prairie Provinces.

During the past two years Mr. E. H. Blackmore, of Victoria, B.C., who has been specializing on the Geometridæ of British Columbia, has discovered one species and seven varieties new to science, viz.: *Stamnodes blackmorei*, Swett; *Hydriomena speciosata var. ameliata*, Swett; *Hydriomena grandis var. saawichata*, Swett; *Petrophora defensaria* varieties *mephistaria*, *giganticaria*, *conciliaria*, *thanataria*, and *suppuraria*, all described by Swett. Mr. Blackmore has generously donated to the Museum collection paratypes of *S. blackmorei*, *H. grandis v. saawichata*, *P. defensaria* varieties *giganticaria*, *conciliaria*, and *thanataria*, and typical specimens of *P. defensaria* varieties *mephistaria* and *suppuraria*.

Amongst a collection of Diptera sent to the Smithsonian Institution, Washington, D.C., for identification, three species were found to be new to science, which necessitated the erection of new genera by Mr. C. H. T. Townsend, who described them in the Canadian Entomologist, Vol. XLII., No. 9, page 285, *et seq.* They are as follows:—

Okanagania hirta, Townsend. This is a new genus with *hirta* as its genotype, and was described from a male taken by Mr. E. M. Anderson at Okanagan Falls on April 27th, 1913.

Rhachogaster kermodei, Townsend. This is also a new genus with *kermodei* for its genotype, and was described from two males taken at Penticton by Mr. Anderson on July 4th and 8th, 1913.

Another new genus, *Pseudodidyma*, was created by Mr. Townsend, having for its genotype a new species named *pullula*, described from a female taken at Farragut Bay, Alaska. Of a male taken by Mr. Anderson at Victoria on April 2nd, 1906, Mr. Townsend says: "It may be a new species, but seems congeneric with the above female."

During the present winter the two exhibition cases of Lepidoptera have been entirely overhauled by Mr. Anderson, who has rearranged and relabelled the entire collection of butterflies and moths down to the Geometridæ, the latter having been put in order by Mr. E. H. Blackmore, of this city, who has contributed many specimens in this group to make it more complete. The collection as it now stands is thoroughly up to date in nomenclature and scientific arrangement.

BOTANY.

In pursuance of the policy announced in the Museum Report for 1914, to devote more attention to the Botanical Branch, a request was made early in the year for the loan of the Herbarium formed by Mr. J. R. Anderson when Deputy Minister of the Department of Agriculture. This request was favourably considered and the transfer made to the Museum on April 28th. The collection of plants was made by Mr. J. R. Anderson in his leisure hours, both on Vancouver Island and in districts on the Mainland visited by him on his official tours. In some of these expeditions Mr. Anderson was assisted by the late Dr. James Fletcher, of the Dominion Experimental Farm at Ottawa, who was well known for his botanical zeal. It was, of course, impossible to cover more than a small portion of a Province of such a vast area as that of British Columbia, but a large number of rare and interesting plants were secured as occasion offered, and it is hoped that these may form the nucleus of a more fully representative collection, and also be more accessible to the general public than heretofore. To facilitate reference to these plants it is proposed to make a card catalogue of the collection, as unfortunately no record of the Herbarium accompanied it, except the data on the labels. By comparing these cards with the catalogues and supplementary lists published by Professor John Macoun in the Reports of the Geological and Natural History Survey of Canada and in numerous other papers, and also with the "Flora of Southern British Columbia," by Professor Henry, it will be possible to discover the species still absent from our collection and to set in motion certain agencies to fill the blanks.

Professor John Macoun and his son, Mr. J. M. Macoun, have both interested themselves in this Herbarium for years. Mr. J. M. Macoun spent some hours in the Museum in September looking over the new collections.

In the flowering season many inquiries are made as to the names of the more popular plants, and as to where their description can be found. To meet these demands it is intended that specimens of some of the most noticeable plants may be mounted and placed in wall-frames, also that some of the more useful books will be held available in the office of the Museum in charge of Miss W. A. Andrew, who has shown great interest in this branch of our work.

PLATE VIII.

Fig. 1. *Papilio machaon* var. *aliaska* Scudder.
Fig. 2. *Parnassius smintheus* var. *nanus* Neumoegen. (Male.)
Fig. 3. *Parnassius smintheus* var. *nanus* Neumoegen. (Female.)
Fig. 4. *Eurymus hecla* var. *glacialis* Maclachlan. (Male.)
Fig. 5. *Eurymus hecla* var. *glacialis* Maclachlan. (Female.)
Fig. 6. *Brenthis polaris* Boisduval. (Male.)
Fig. 7. *Brenthis frigga* var. *saga* Kaden. (Female.)
Fig. 8. *Brenthis frigga* var. *improba* Butler. (Under side.) (Female.)
Fig. 9. *Brenthis frigga* var. *improba* Butler. (Under side.) (Male.)

(*See* page 16.)

PLATE VIII.

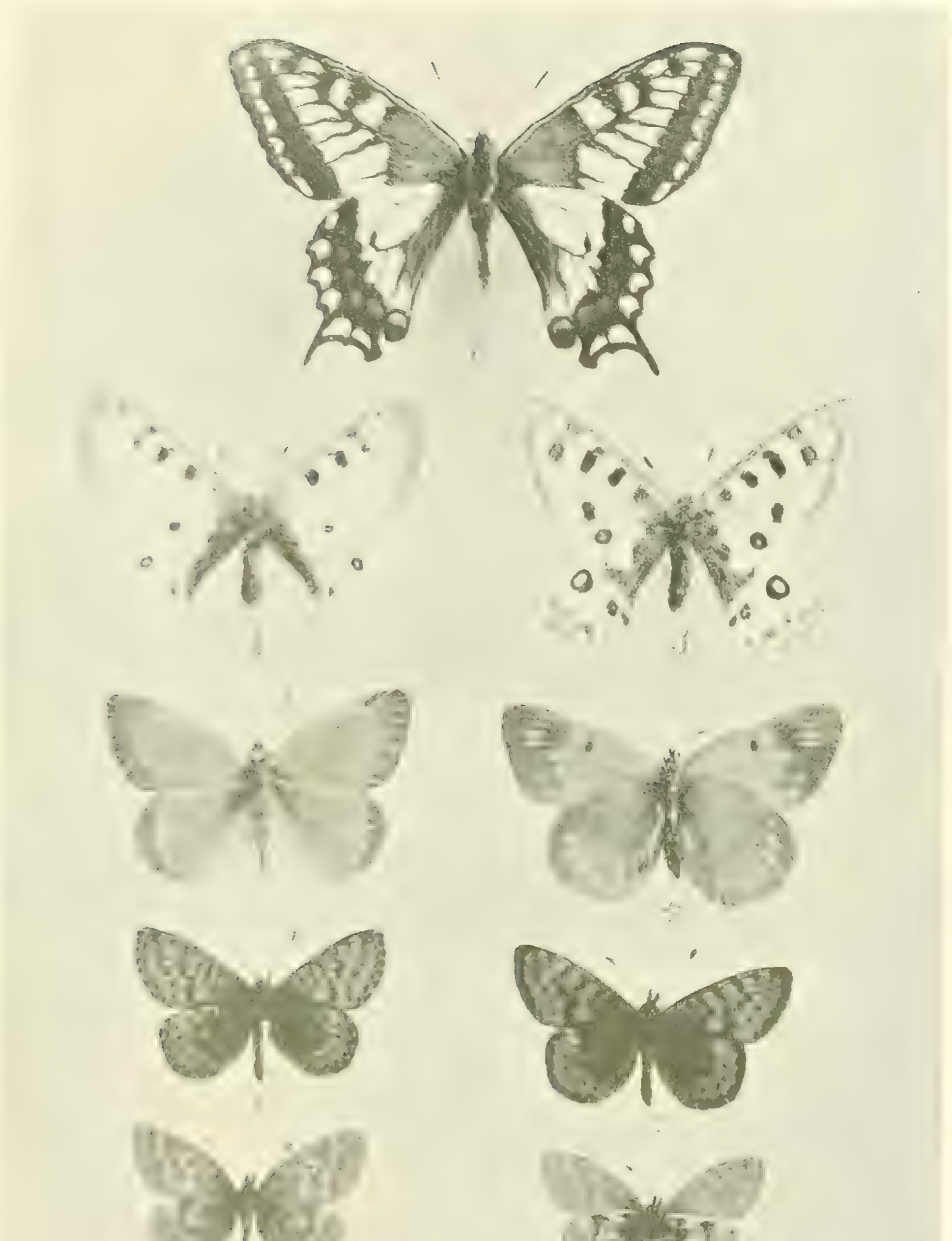


PLATE IX.

Fig. 1. *Erebia disa* var. *mancinus* Doubleday. (Male.)
Fig. 2. *Erebia disa* var. *mancinus* Doubleday. (Female.)
Fig. 3. *Oeneis jutta* Hubner. (Male.)
Fig. 4. *Oeneis jutta* Hubner. (Female.)
Fig. 5. *Oeneis norna* var. *taygete* Hubner. (Male.)
Fig. 6. *Oeneis norna* var. *taygete* Hubner. (Female.)
Fig. 7. *Oeneis uhleri* Reakirt. (Male, northern form.)
Fig. 8. *Oeneis uhleri* Reakirt. (Female, northern form.)
Fig. 9. *Anomogyna lætabilis* Zett. (Male.)
Fig. 10. *Anomogyna lætabilis* Zett. (Female.)

(*See* page 16.)

PLATE IX.

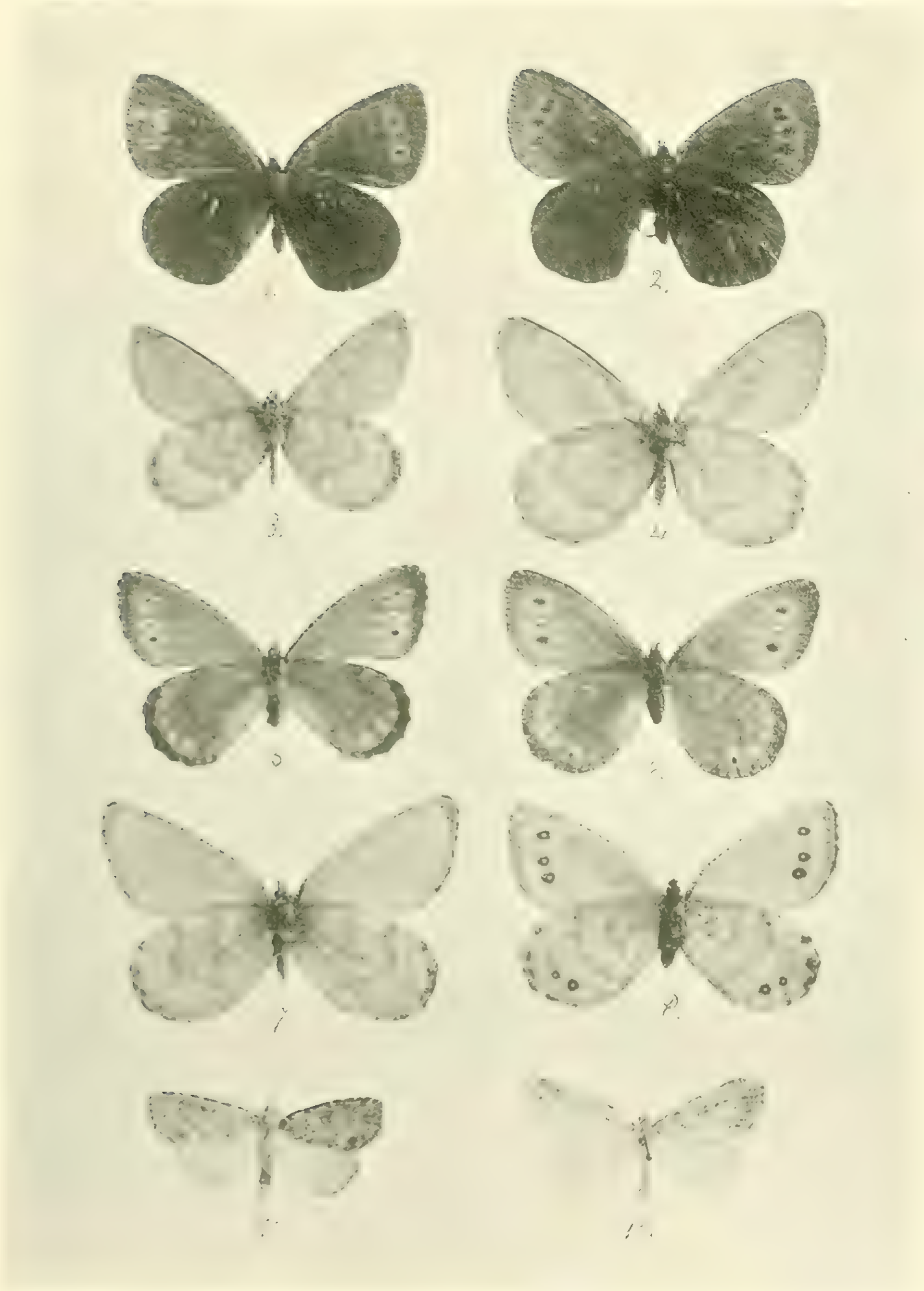


PLATE X.

NEW SPECIES OF DIPTERA.

Fig. 1. *Rhachogaster kermodei* Townsend. Penticton, B.C., July, 1913 (E. M. Anderson). Magnified 4¼ times.

Fig. 2. *Pseudodidyma pullula* Townsend. Victoria, B.C., April, 1906 (E. M. Anderson). Magnified 8½ times.

Fig. 3. *Okanagania hirta* Townsend. Okanagan Falls, B.C., April, 1913 (E. M. Anderson). Magnified 5½ times.

(*See* page 18.)

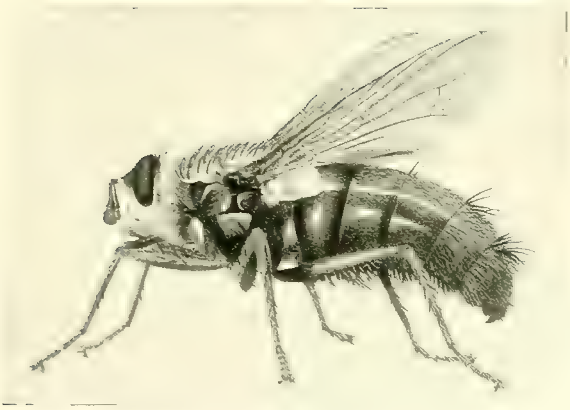


Fig. 1.

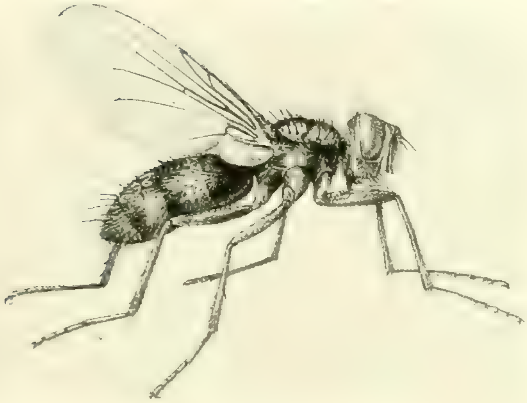


Fig. 2

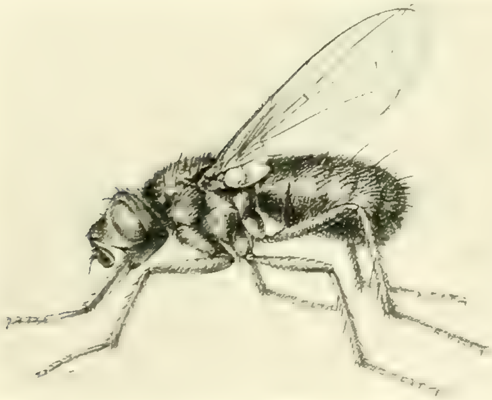


Fig. 3

Amongst the accessions to the Herbarium are:—

(1.) A collection made by Mr. E. M. Anderson in the Atlin region in 1914, to which brief mention was made in last year's report. This contains a number of rare species, and the collection has been listed as follows by Professor John Macoun and his son, Mr. J. M. Macoun, mentioned above:—

Polypodium occidentale (Hook), Maxon.
Aspidium spinulosum, Swartz.
Aspidium fragrans, Swartz.
Cystopteris fragilis, Bernh.
Lycopodium annotinum, L.
Luzula spadicea melanocarpa, E. Meyer.
Eriophorum polystachion, L.
Veratrum viride, Ait.
Tofieldia glutinosa, Willd.
Tofieldia borealis, Wahl.
Zygadenus elegans, Pursh.
Cypripedium passerinum, Rich.
Habenaria dilatata, Pursh.
Habenaria hyperborea, R. Br.
Habenaria obtusata, Richards.
Smilacina sessifolia, Nutt.
Smilacina amplexicaulis, Nutt.
Orchis rotundifolia, Pursh.
Polygonum viviparum, L.
Silene acaulis, L.
Cerastium arvense, L.
Stellaria longipes, var.
Arenaria lateriflora, L.
Anemone multifida, Poir.
Anemone patens, L., var. *Wolfgangiana* (Bess), Koch.
Anemone parviflora, L.
Caltha leptosepala, DC.
Aquilegia formosa, Fisch.
Corydalis aurea, Willd.
Draba alpina, var. hebecarpa, Gray.
Arabis lyrata occidentalis, S. Wats.
Arabis drummondii, A. Gray.
Sedum stenopetalum, Pursh.
Saxifraga occidentalis, Wat.
Saxifraga tricuspidata, Retz.
Saxifraga oppositifolia, L.
Mitella trifida, Gray.
Parnassia palustris, L.
Rubus arcticus grandiflorus, Ledeb.
Potentilla dissecta, Pursh.
Potentilla nivea, L.
Potentilla fruticosa, L.
Potentilla palustris, L.
Dryas integrifolia, Ch. & Sch.
Lupinus arcticus, Wats.
Lupinus nootkatensis (?)
Hedysarum boreale, Nutt.
Oxtropis lamberti, Pursh.
Astragalus alpinus, L.
Geranium erianthum, DC.
Viola nephrophylla, Greene.
Viola langsdorfii, Fischer.
Epilobium latifolium, L.
Epilobium augustifolium, L.
Cornus canadensis, L.
Moneses uniflora, Gray.
Pyrola incarnata, DC.
Cassiope mertensiana, G. Don.
Kalmia glauca, Ait.
Ledum latifolium, Ait.
Vaccinium cæespitosum, Mx.
Primula sibirica, Jacq.
Androsace occidentalis, Pursh.
Polemonium cœruleum, L.
Polemonium elegans, Greene.
Polemonium pulchellum, Bunge.
Polemonium humile, R. & S.
Mertensia platyphylla, Heller.
Mertensia paniculata (Ait.) Don. (albino).
Myosotis sylvestris, L.
Myosotis sylvatica var. alpestris. Koch.
Myosotis alpestris, Lehm.
Pentstemon confertus cœruleo-purpureus, A. Gray.
Pentstemon confertus, Dougl.
Mimulus langsdorfii, Donn.
Pedicularis capitata, Adams.
Pedicularis euphrasioides, Stephen.
Pedicularis langsdorfii, Fisch.
Castilleja pallida, Kunth.
Pinguicula vulgaris, L.
Galium boreale, L.
Linnæa borealis, Gron.
Valeriana sitchensis, Bong.
Solidago multiradiata, Ait.
Solidago multiradiata, Ait., var. *scopulorum*, Gr.
Erigeron compositus, Pursh.
Aster sibiricus, L.
Achillæa borealis, Bong.
Arnica cordifolia, Hook.
Senecio lugens, Rich.
Senecio cymbalarioides, Nutt.
Antennaria microphylla var. rosea, Greene.

(2.) A collection from the Okanagan country by Mr. J. A. Munro (43 species).

(3.) A collection from Bare Island, in the Gulf of Georgia, by Mr. W. B. Anderson (25 species).

(4.) A collection from Uchucklesit, Barkley Sound, by W. B. Anderson.

(5.) A collection from Sahtlam District, Vancouver Island, by Mr. E. M. Anderson (35 species).

(6.) A collection from Cranbrook, East Kootenay, by Mr. C. Garrett, now in the hands of Mr. J. M. Macoun, Ottawa.

(7.) A collection from Chilcotin District by W. A. Newcombe (over 100 species).

Also minor accessions have been received from Professor Henry, of Vancouver, Dr. C. F. Newcombe, and several local specimens have been added by the Museum staff.

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    Page 113: List of plants of Southern Vancouver Island for early part of May, 1875.
    Page 118: List of plants of Yale.
    Page 186: List of plants of Vancouver Island; British Columbia to base of Rockies; and Rocky Mountains.
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    Page 219B: List of Dr. G. M. Dawson's Queen Charlotte Islands plants.
  Same Report, 1879-80—
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    Vol. II., 1886, Appendix II. to Part B: List of plants obtained by Dr. G. M. Dawson on Vancouver Island and adjacent coasts in 1885.
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    Page 469-471: Mention of collections made along International Boundary.
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PLATE XI.

Fig. 1. Mammoth tooth (*Elephas primigenius* Blum.), Shuswap Lake. Presented by the late Frederick Hussey.

Fig. 2. Mastodon tooth (*Mastodon americanus* Cuvier). found 1903, Dago Gulch, Hunker Creek, Y.T. Bequest: the late Mrs. C. A. Coulson.

Fig. 3. Mammoth tooth (*Elephas primigenius* Blum.), Cordova Bay. Victoria.

(*See* page 21.)

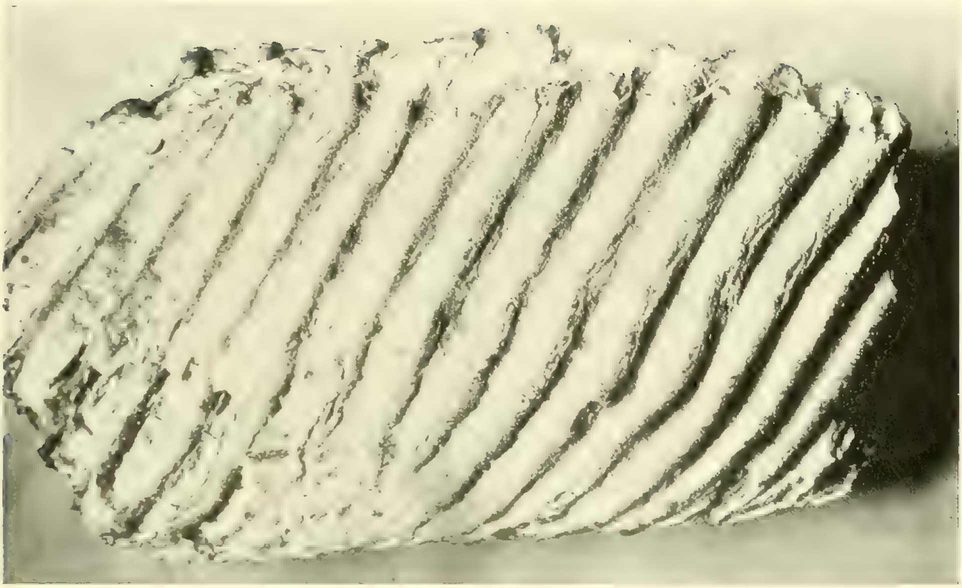

Fig. 1.

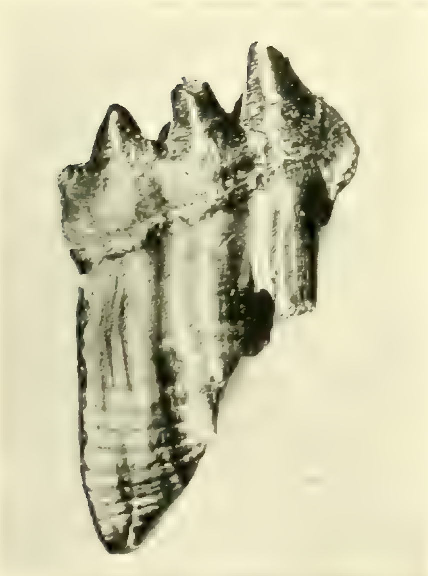

Fig. 2.

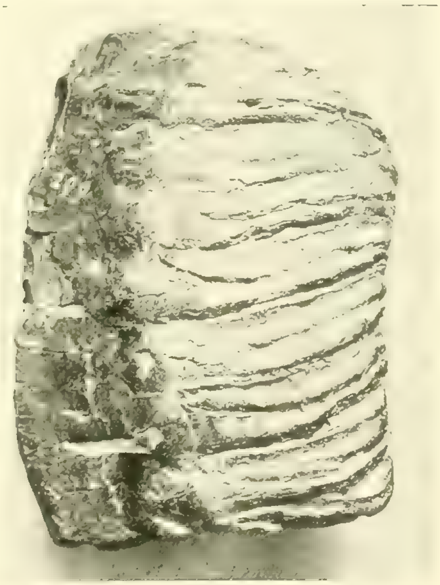

Fig. 3.

PALÆONTOLOGY.

Accessions to the palæontological collection have been of late years few and far between. Early in 1915, however, the finding of a tooth of a fossil elephant in the Mount Tolmie gravel aroused fresh interest in our small collection of mammalian remains. On comparing this specimen with fossil elephant-teeth from the Yukon country, it presented several marks of distinction. Photographs of two teeth from the Yukon and three from Vancouver Island and the neighbouring regions were sent to Dr. O. P. Hay, of Washington, who has written largely on the subject of Pleistocene fossils. He reported that, in his opinion, the northern specimens were true molars belonging to the hairy mammoth *Elephas primigenius*, while those from the south, which had fewer and wider plates, belonged to the Columbian elephant *E. columbi*.

Another specimen which has been in the Museum for many years was identified by Dr. O. P. Hay as the worn vertebra of some species of whale. This was found in Pleistocene gravels between Parson's Bridge and Langford Lake, Vancouver Island, when collecting ballast for the Esquimalt & Nanaimo Railway.

In the year 1913 remains of bison were recorded from two parts of the Province. In the Atlin country Mr. E. M. Anderson found a fine skull with horns. In the low-lying ground between George Jay Public School and the Protestant Orphanage, east of Cook Street, Victoria, Dr. C. F. Newcombe found a fragment of horn which the Director identified as belonging to a species of bison. Both of these specimens were forwarded for examination to Mr. Lawrence M. Lambe, Vertebrate Paleontologist of the Geological Survey, Ottawa. The Victoria fragment, in his opinion, belongs to *Bison bison*. His report on the Atlin specimen is given herewith in his own words:—

"The occiput with horn cores from the Atlin District is of *Bison bison* (L.), (*B. americanus*); that is, I regard it as such. It gives measurements which place it in this species. The range of the American bison extended up into the Mackenzie River District, and these animals are known to have passed well into the Rocky Mountains. It is probable that your specimen was a straggler toward the Coast in the Far North, or possibly the range of the buffalo extended well westward from the Mackenzie District, the animals taking advantage of the broad and comparatively low passes through the northern mountains. The specimen is light and not at all fossilized. Whether it belonged to a wood buffalo, which appears to be not more than a subspecies of the plains buffalo, it is difficult to say."

Mr. Lambe was also good enough to make a careful examination of a tooth of a mastodon which has been for many years in the Museum. His report upon it follows:—

"The tooth from Yukon is of *Mastodon americanus* (Cuvier), and is a lower third true molar of the left side. The front transverse ridge is broken off and with it the front root, which was slender and, in comparison with the hinder one, of small size. The specimen has been considerably shaken in transit and some fragments have become detached. These I have cemented back in place. Your tooth is an excellent one, although not complete. As you know, remains of mastodon are, in comparison with those of mammoth, rather rare in the extreme North-west."

Four casts of a scallop were presented by Mr. A. J. Dempster, found in a road-cut at Clo-oose, Vancouver Island. They seem to belong to *Pecten brauneri*, Arnold, and to have come from the Monterey formation.

GENERAL ACCESSIONS.

Jan. 25. White-tail Ptarmigan. Presented by W. B. Conroy, Atlin.
Feb. 15. Indian stone sharpener (?), found on Dallas Road foreshore, Victoria, and presented by Arthur Warren.
" 24. Indian basket. Purchased.
March 12. Western Evening Grosbeak (3), Parksville, V.I. Presented by H. Rawlins.
" 17. Marine specimens (16), Prince Rupert. Presented by M. L. Bird.
" 20. Fossil pectens, Clo-oose. Presented by A. J. Dempster.
April 6. Indian stone anchor, found while excavating for breakwater, Dallas Road, Victoria. Presented by A. J. Elgee, C. E.
" 18. Sparrows (2). Presented by Dr. E. Hasell, Victoria.
" 26. Crayfish, Victoria Harbour. Presented by A. Halkett through the Natural History Society of British Columbia.
May 24. Slate totem-poles, Queen Charlotte Islands. Purchased.

June 5. Indian stone hammer, found on Graham Island. Presented by Pte. Geo. S. Mayer, 48th Battalion, C.E.F.
July 14. Sunfish, caught by Ucluelet Indians three miles off-shore. Presented by S.S. "Tees" through E. F. Jordan, second officer.
″ 29. *Prionus californicus.* Presented by Geo. Nelm, Ganges, B.C.
Aug. 15. Silk-moth. Presented by Laura Carrington, Nicola.
Sept. 5. 1 nest and eggs, Mallard
2 ″ Willow Thrush
2 ″ Redstart
1 ″ Audubon's Warbler
2 ″ Shufeldt's Junco
2 Squirrel
1 Chipmunk
1 White-footed Mouse
1 Sparrow Hawk
1 Gambel's Sparrow
1 Shufeldt's Junco
1 Western Meadowlark
1 Ruby-crowned Kinglet
1 Willow Thrush
Miscellaneous collection of 300 papered insects
} Presented by W. A. Newcombe; collected in Chilcotin District.
Sept. 6. Jack-hare, White Lake. Presented by C. deB. Green.
″ 14. Broad-finned Cod, Saanich Inlet. Presented by A. H. Maynard.
″ 20. Painted Fish, Gulf of Georgia. Presented by P. Walker.
″ 22. Sea Pen, Trial Island. Presented by B. Bonner.
″ 30. White Sea Bass, Port Alberni. Presented by Messrs. Butterfield and Mackie.
Oct. 7. California Quail, Victoria. Presented by R. Powell.
″ 20. Camp Robber's nest and set of three eggs. Purchased.
″ —. Lynx. Presented by Beacon Hill Park.
Nov. 4. Indian Mask, Metlakatla. Purchased.
″ 6. Small mammals, Okanagan District. Purchased.
″ 15. Chipmunk (in alcohol). S. Hadwen. Experimental Farm, Agassiz.
Dec. 1. Stone sinker, found on Brentwood beach, V.I. Presented by A. Shotbolt.
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VICTORIA, B.C.:
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1916.

No. 8

PROVINCE OF BRITISH COLUMBIA

REPORT

OF THE

PROVINCIAL MUSEUM

OF

NATURAL HISTORY

FOR THE YEAR 1916

SMITHSONIAN INSTITUTION
289837
FEB 5 1932
NATIONAL MUSEUM

THE GOVERNMENT OF
THE PROVINCE OF BRITISH COLUMBIA.

PRINTED BY
AUTHORITY OF THE LEGISLATIVE ASSEMBLY.

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1917.

To His Honour Frank Stillman Barnard,

Lieutenant-Governor of the Province of British Columbia.

May it please Your Honour:

The undersigned respectfully submits the Annual Report of the Provincial Museum of Natural History for the year 1916.

J. D. MacLEAN,

Provincial Secretary.

Provincial Secretary's Office, Victoria,
March, 1917.

PROVINCIAL MUSEUM OF NATURAL HISTORY,
VICTORIA, B.C., March 24th, 1917.

The Honourable J. D. MacLean, M.D.,
Provincial Secretary, Victoria, B.C.

SIR,—I have the honour, as Director of the Provincial Museum of Natural History, to lay before you the Report for the year ending December 31st, 1916, covering the activities of the Museum.

I have the honour to be,
Sir,
Your obedient servant,

FRANCIS KERMODE,
Director.

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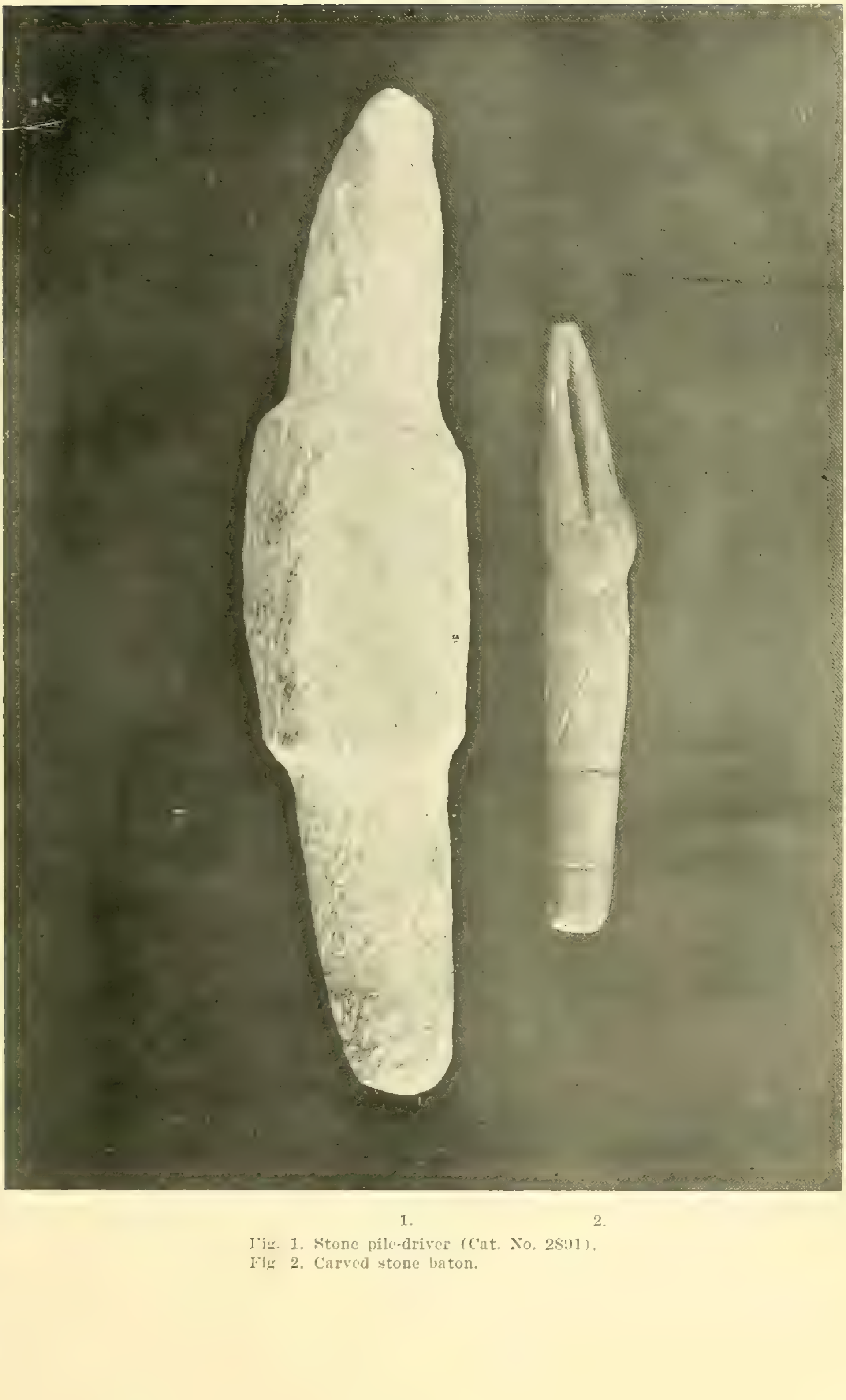


1. 2.

Fig. 1. Stone pile-driver (Cat. No. 2891).
Fig 2. Carved stone baton.

PROVINCIAL MUSEUM REPORT

FOR THE YEAR 1916.

In reviewing the activities of the Provincial Museum for the year ending December 31st, 1916, it is to be noted that considerable progress has been made, and that a number of rare specimens have been added to the collection, with valuable data.

At the beginning of the year the Director was informed that all departments of the Civil Service would be expected to exercise the strictest economy and still keep up efficiency. With that end in view the work in the Provincial Museum has been carried on throughout the year. Only two parties were sent afield for any length of time during the summer months.

Mr. J. A. Munro was engaged from the middle of April to the end of October to carry on the biological investigations commenced last year in the Northern Okanagan and Shuswap Districts.

Mr. E. M. Anderson, of the Museum staff, was stationed in the Lillooet District from the beginning of May to the end of July, headquarters being established at the Provincial Government Hatchery, at Seton Lake, by kind permission of Mr. J. P. Babcock, Assistant to the Commissioner of Fisheries. Mr. Anderson made trips to Blackwater Lake, and also ascended Mount McLean, where some good material was secured, of which no detailed reports have been received.

The Director, accompanied by Dr. C. F. Newcombe, also visited this district, and secured some very interesting specimens for the Herbarium, also for the anthropological sections.

The matter of obtaining Bare Island for a permanent bird sanctury has not made any further advancement. However, the Director made special arrangements again with the Indian Department for this Department to place a guard on the island during the nesting season to look after the preservation of bird-life. This arrangement has done away with the proposed matter of arbitration for the present, and is very satisfactory, as it does not prevent the Indians from camping there while gathering "camas," which is used extensively by them for food.

It will be noticed by the following lists that the field collectors have collected a vast amount of material other than their special line of birds and mammals, more particularly in collecting the plants of the district where they were located, which means a great deal of labour and time in addition to their other duties. Nearly all the botanical specimens have been identified by Mr. J. M. Macoun, of Ottawa, who has always shown a great interest in the Herbarium of the Provincial Museum.

Mr. W. R. Carter, of Alberni, has also taken a keen interest in the botanical branch, and has secured some very rare and interesting specimens for this Department.

The Director is also pleased to report that to the collection of fishes has been added several species new to British Columbia, namely: Sunfish (*Mola mola*), giant black bass (*Erilepis zonifer*), also a species of frostfish (*Benthodesmus atlanticus*), of which there is only one other known specimen.

The entomological collection has been greatly enriched by several new species, and others that are new to the Province.

Several good additions have been made to the anthropological collection. Three stone hammers were presented to the Director for the Museum while on a trip to Seton Lake, and although the Indian reservations were visited by the Director and Dr. C. F. Newcombe, little or no information could be secured concerning them, the present generation not appearing to know for what use they had been intended.

Information was received later from Lieutenant F. C. Swannell, B.C.L.S., of this city, who has one of these hammers in his possession, who states that he had received the information from the chief of the Lillooet Indians, which confirms our theory that these implements were used as pile-drivers. One of these specimens is figured in this report.

One of the most interesting specimens that has been added to the collection of fossils is the molar tooth of an extinct Sirenian species (*Desmostylus hesperus*), which is a close relation to the recently extinct mammal, the arctic sea-cow of the North Pacific, that was practically exterminated about the year 1780.

The Provincial Museum wishes to extend grateful thanks to the following gentlemen who have greatly assisted with identifications in their respective branches of biology:—

Identification of Birds and Mammals.—The Biological Survey, United States National Museum, Smithsonian Institution, Washington, D.C.; Mr. Henshaw, Chief of the Biological Survey; also Mr. H. C. Oberholser and others.

Identification of Entomological Specimens.—The Bureau of Entomology, Washington, D.C. (L. O. Howard, Chief): Mr. F. H. Wolley Dod, of Calgary; Doctors Barnes and McDunnough, of Decator, Ill.; Mr. L. W. Swett, Boston, Mass.; and Mr. E. H. Blackmore, Victoria.

The thanks of the Department are also due to Professor John Macoun, Naturalist of the Geological Survey, Ottawa, who is now a resident of Sidney, B.C.; Mr. J. M. Macoun, C.M.G., Curator of the Herbarium, Ottawa; C. F. Newcombe, M.D., Victoria, B.C.; Mr. Lawrence M. Lambe, Palæontologist, Ottawa: Dr. Merriam; Dr. Ralph Arnold, well-known geologist of Berkeley, California; and Mr. B. L. Clark, of the University of California. Also to the following for notes on bird migrations and for specimens presented to the Museum; J. E. Kelso, M.D.; W. B. Johnson and others at Edgewood, Lower Arrow Lakes; W. R. Carter, Deputy Game Warden, Alberni; W. A. Newcombe, Victoria.

ANTHROPOLOGY.

Accessions, 1916.

Tsimshian.

The following were purchased from Chief Aksidar, Kincolith:—

Stone mortar (2882). A large specimen; formerly used for pounding the native tobacco.

Shaman's head-dress of grizzly-bear claws (2883).

Cellular lava (2884-2885). Used at dances.

Cannibal dancer's head-rings (3) of cedar bark (2886-2887-2888).

Cannibal dancer's neck-ring (2889).

Basket, spruce-root (2898). From Kispiox, Skeena River. Presented by Lieutenant G. T. Emmons, U.S.A.

Mirror, stone (2899). From Hoquelget, Bulkley River, a village site belonging to the Tsimshian Hazelton band, but occupied by the Hoquelgets, an Athabascan band (2900).

Mask, copper, representing a human face. Used in winter dances. From Kispiox, Skeena River. From Lieutenant G. T. Emmons, U.S.A., in exchange.

Salishan of the Coast.

Pictograph (2874). Cast of an Indian carving on the surface of an outcrop of sandstone near Chase River, Nanaimo, B.C. From a mould made by Harlan I. Smith for the Jesup North Pacific Expedition, 1898, and illustrated in his "Archæology of the Gulf of Georgia," Vol. IV., Mem. Amer. Mus. of Nat. Hist. In exchange from Geological Survey of Canada.

Arrow-head of chipped stone (2897). From dry bed of ancient lake, Gonzales Farm, Victoria, B.C. Presented by W. B. Anderson.

Mat of coloured wool (2903). Shows designs used in the old ceremonial blankets. Purchased from Mrs. W. Charles.

Salishan Interior—Lillooet.

Nephrite boulder (2890). Slices have been sawed off it of which to make stone chisels, etc. From Seton Lake. Presented by L. Keary.

Hammer, stone (2893). Seton Lake. Presented by L. Keary.

Hammer, stone (2894). Seton Lake. Presented by J. P. Babcock.

Pile-driver, stone, two-handed (2891). Seton Lake; probably used for driving piles when setting up fish-weirs. Presented by L. Keary.

Pile-drivers (2), stone, two-handed (2895-2896). North shore, Seton Lake. Presented by W. R. Bellamy.

Hammer, stone (2892). Purchased at Indian village, Lillooet.

PLATE 11

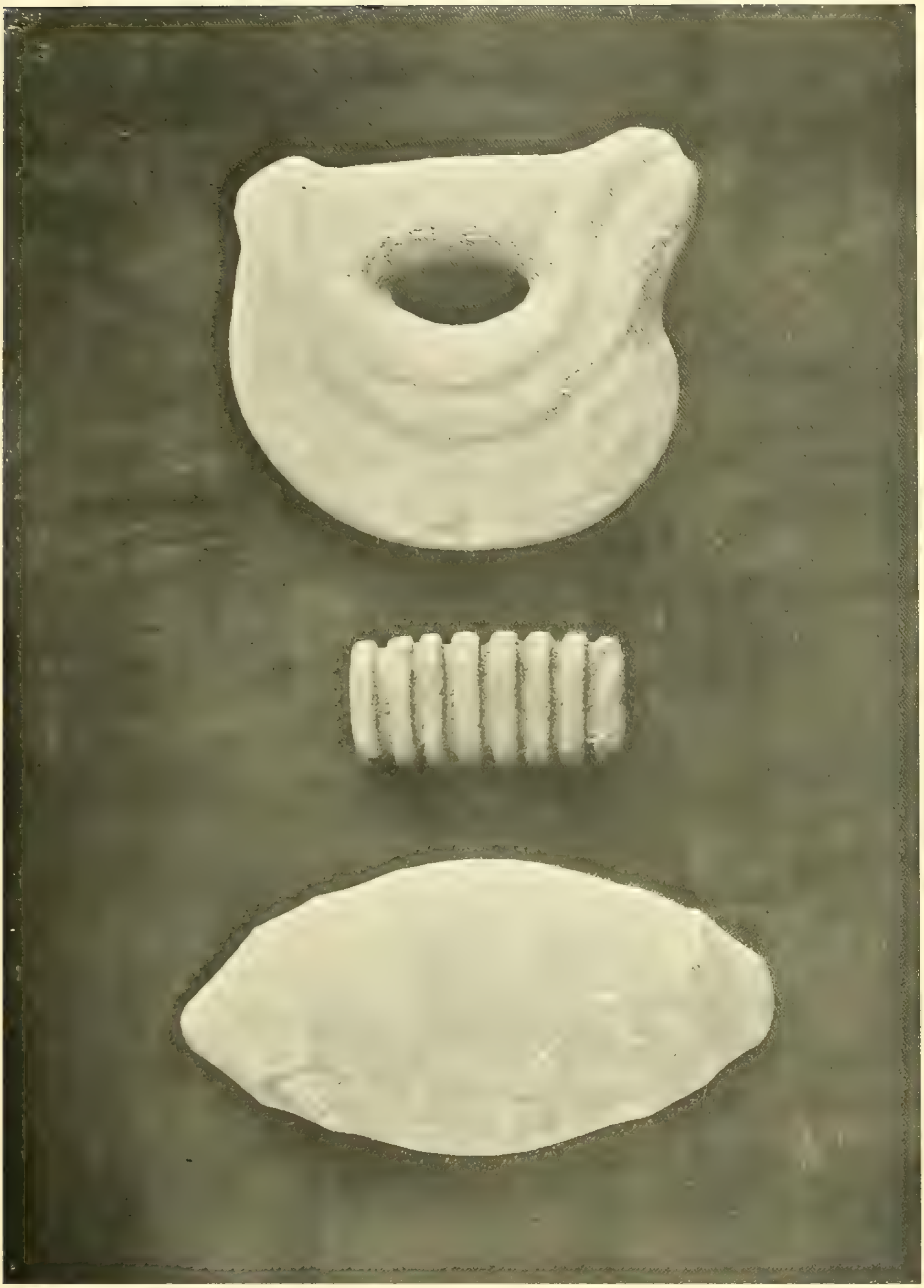


Fig. 1. Stone chopper (Cat. No. 1801).
Fig. 2. Stone implement (Cat. No. 1793).
Fig. 3. Stone hand-hammer (Cat. No. 1736).

Tlingit.

Chilkat blanket (2901). Purchased from Hon. Mr. Justice Martin.

Haidan.

Hat, spruce-root, with painted crest (2902). Purchased from Mrs. Wm. Charles.

Athabascan.

Tobacco-bag, with ornamental bead-work (2877). From Hudson Hope, north of Peace River. Presented by Chief Constable Thos. Parsons.

Bag ornamented with beads (2879). Presented by Chief Constable Thos. Parsons.

Knife with wooden handle (2880). Used for barking trees. Presented by Chief Constable Thos. Parsons.

Moccasins, rawhide (2881). Presented by Chief Constable Thos. Parsons.

Illustrations, Archæology of British Columbia.

Plate I., Fig. 1. Stone pile-driver (2891). Size, 22 x 4½ x 4½ inches. Weight, 23½ lb. Three specimens of this type were obtained at Seton Lake in 1916, and with the exception of a few specimens in the collection of W. H. Keary, Esq., of New Westminster, none others have been observed. So far as known, no such implements have been either described or illustrated and no reference is made to them in the report on the Lillooet Indians by the well-known writer, Mr. J. A. Teit, of Spences Bridge.

Plate I., Fig. 2. Carved stone baton. Size, 13¼ x 2 inches. Collected at Hoquelget, Bulkley River, in 1897, and presented to C. F. Newcombe by A. T. Vowell, Esq., Indian Superintendent for British Columbia. The specimen was found with many others some feet below the surface of the ground when digging over the foundation of an old house by Chief Johnny Muldoe.

Several of the batons were of hard stone and not carved, and these were suitable for use as weapons. Others, like that figured, were of sandstone, deeply carved and perforated, and were too brittle, both as to material and make, to be serviceable as weapons.

The tradition obtained from Indians says that these were last used by the Gitanmax or Hazelton band of Tsimshians nearly a hundred years ago when fighting with the Kitsegukla band in alliance with the Kit-ksuns of the Upper Skeena.

The Gitanmax were nearly wiped out, but their weapons and insignia were collected after the battle by an old woman who cached them where they were found by the Babine chief mentioned.

Several similar batons are in the Victoria Memorial Museum, Ottawa, from Metlakatla. This type of batons has not hitherto been described or illustrated so far as known.

Plate II., Fig. 1. Stone implement (1801/557). Size, 6½ x 5½ inches. Of mica-schist. This specimen is shaped somewhat like the bone-bark choppers of certain Coast tribes or some of the fish-knives, having a straight upper edge and a curved lower one. It is, however, much thicker than either of these and the edge is blunt. Three similar specimens were collected in an old kitchen-midden on Digby Island, near Prince Rupert, together with a great number of bone and stone objects, and another has been in the Provincial Museum since 1889. This was collected at Port Simpson by Mr. W. B. Anderson and is numbered 753. No information as to history and use could be obtained from the Tsimshian people.

Plate II., Fig. 2. Stone implement (1793/232). Size, 3½ x 1⅛ inches. Of porous sandstone, with numerous deep grooves. This is one of a few similar specimens found in the kitchen-midden at Digby Island, already referred to. No information as to use obtained from Indians. It is suggested that it might have served as a scraper for the gut used for bow-strings and other purposes.

Plate II., Fig. 3. Stone hand-hammer (1736/561). Size, 7 x 4 x 1¾ inches. Weight, 4½ lb. Of tough igneous rock, rounded oblong, narrow at the ends, each of which has two shallow grooves. There are two flattened striking surfaces parallel to each other.

In the Museum, collected from the kitchen-midden at Digby Island, there is a series of sixteen stones of similar size and shape, ranging from the natural smooth, water-worn pebble to the fully manufactured object. The series shows intermediate stages of manufacture beginning with shallow grooves made by battering the natural pebble with another hard stone.

Some of the set are very symmetrical and pointed at each end. Others are squared off narrowed ends and one circular shallow pit on each flattened side, in this respect resembling hammer stones found in shell mounds near Victoria.

The range of this implement is not confined to the Tsimshian country, as two similar specimens were collected by Dr. Newcombe at Masset, Q.C.I., where they had been found by Indians when digging up old house-sites.

BARE ISLAND BIRD SANCTUARY.

The Director arranged with Duncan C. Scott, Deputy Superintendent-General of Indian Affairs, Ottawa, to again give the Provincial Museum authority to place a guard on Bare Island during the nesting season of 1916. (This island is known as Indian Reserve No. 9, Saanich Tribe, and is situated in Haro Strait about twenty miles north-east of Victoria.)

Mr. W. B. Anderson was again appointed warden, he being an ardent lover of nature, and much interested in the preservation of "wild life." I do not think the Government could have engaged a more competent person to take charge of the sanctuary. Mr. Anderson remained on the island from the middle of June until the end of July continuously. The Director made several trips to Bare Island during the nesting period, and it was very gratifying to note the benefit that had resulted in protecting this island for the last two seasons; the breeding glaucous-winged gulls (*Larus glaucesceus*) have about doubled in number. The pigeon guillemots (*Cepphus columba*) have increased, but not so great in numbers as the gulls; "and it is to be hoped that as the rabbits get killed off that had been turned out on the island several years ago," that the guillemots will again be able to return, and take up their old nesting-places under the broken rocks and in the deep crevices. The violet-green cormorants (*Phalacrocorax p. robustus*) have increased in considerable numbers, as is to be noted by a visit to the high cliffs on the western side of the island, where these birds build their nests. The tufted puffins (*Lunda cirrhata*) do not seem to be returning, as only about four pairs were observed, they having also been driven out of their deep burrows by rabbits.

The guard was pleased to report that the Indians did not go to the island this last season to gather camas, also that the birds had not been disturbed during the incubation period, and that no other persons had been allowed to land on the island, other than those who had been given a special permit from the Director.

Many thanks are due to W. E. Ditchburn, Inspector of Indian Affairs for British Columbia, who gave Mr. Anderson a letter giving him protection, and a warning to any person or persons interfering with him in the discharging of his duties.

REPORT ON FIELD-WORK IN OKANAGAN AND SHUSWAP DISTRICTS, 1916.

By J. A. Munro.

Biological investigations in the Okanagan and Shuswap Districts were continued during the season of 1916, from April 20th to October 31st. Several months were spent in the vicinity of Okanagan Landing, enlarging the collections and adding to the field-notes commenced last season. A résumé of the topographical and forest conditions of this district was published in the field report for 1915. Collecting trips were made to the following points:—

NAHUN PLATEAU.

Three camps were made on the Nahun Plateau. This plateau is on the west side of Okanagan Lake, twenty miles south of Okanagan Landing. The highest point is at the eastern end, where the altitude is 3,200 feet. Field operations were confined to this portion, where the fauna and flora is typically Canadian. A considerable quantity of zonal notes and data relating to the distribution and breeding habits of some of the rarer species of birds were obtained.

The principal trees are Murray pine (*Pinus murrayana*) and western larch (*Larix occidentalis*), with small stands of western red cedar (*Thuja plicata*) and clumps of Engelmann's spruce (*Picea engelmanni*) in the bottoms.

The valley slopes gradually south-west to Bear Creek. As the altitude decreases zonal characters become less sharply defined. The Murray pine and western larch give way to yellow pine, which gradually becomes the prevailing tree. With the appearance of yellow pine there is a corresponding infusion of transitional faunal forms.

SWAN LAKE.

Several trips were made to Swan Lake. This is a shallow alkaline lake, about four miles long and half a mile wide, lying immediately north of the North Arm of Okanagan Lake. The shores are muddy and grown up with tules, rushes, and sedges. The rich bottom land is under cultivation as close to the water as possible, but sufficient cover to make the shores an attractive breeding-ground for birds is afforded by dense patches of second growth, chiefly aspen (*Populus tremuloides*), mountain-birch (*Betula fontinalis*), willow (*Salix sp.*), and alder (*Alnus sp.*).

The following species of birds were breeding:—

Holbœll's Grebe (*Colymbus holbœlli*).
Horned Grebe (*Colymbus auritus*).
Loon (*Gavia immer*).
Black Tern (*Hydrochelidon nigra surinamensis*).
Mallard (*Anas platyrhynchos*).
Redhead (*Marila americana*).
Ruddy Duck (*Erismatura jamaicensis*).
Bittern (*Botaurus lentiginosus*).
Coot (*Fulica americana*).
Spotted Sandpiper (*Actitis macularia*).
Killdeer (*Oxyechus vociferus*).
Marsh Hawk (*Circus hudsonius*).
Osprey (*Pandion haliaetus carolinensis*).
Short-eared Owl (*Asio flammeus*).
Western Belted Kingfisher (*Ceryle alcyon caurina*).
Red-naped Sapsucker (*Sphyrapicus varius nuchalis*).
Kingbird (*Tyrannus tyrannus*).
Western Wood Pewee (*Myiochanes richardsoni richardsoni*).
Alder Flycatcher (*Empidonax trailli alnorum*).
Magpie (*Pica pica hudsonia*).
Western Crow (*Corvus brachyrhynchos hesperis*).
Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*).
Northwestern Redwing (*Agelaius phœniceus caurinus*).
Western Meadowlark (*Sturnella neglecta*).
Bullock's Oriole (*Icterus bullocki*).
Brewer's Blackbird (*Euphaga cyanocephalus*).
Pale Goldfinch (*Astragalinus tristis pallidus*).
Western Vesper Sparrow (*Poœcetes gramineus confinis*).
Western Chipping Sparrow (*Spizella passerina arizonæ*).
Sooty Song Sparrow (*Melospiza melodia rufina*).
Spurred Towhee (*Pipilo maculatus montanus*).
Lazuli Bunting (*Passerina amœna*).
Cedar Waxwing (*Bombycilla cedrorum*).
Red-eyed Vireo (*Vireosylva olivacea*).
California Yellow Warbler (*Dendroica æstiva brewsteri*).
Pacific Yellow-throat (*Geothlypis trichas arizela*).
Catbird (*Dumetella carolinensis*).
Western Marsh Wren (*Telmatodytes palustris plesius*).
Chickadee (*Penthestes atricapillus atricapillus*).
Willow thrush (*Hylocichla fuscescens salicicola*).
Western Robin (*Planesticus migratorius propinquus*).
Mountain Bluebird (*Sialia currucoides*).

SHUSWAP DISTRICT.

The Shuswap District was visited in the early part of June and again in the latter part of October. Board was obtained at a ranch near Shuswap Falls. This proved much more satisfactory than establishing a camp, as more time could be given to the collecting and preparing of specimens.

Although only slightly higher than the Okanagan, biological conditions are quite different. On the mountain-slopes the fauna and flora are distinctively Canadian. The principal trees are western white pine (*Pinus monticola*), Murray pine (*Pinus murrayana*), western larch (*Larix occidentalis*), Engelmann's spruce (*Picea engelmanni*), and western hemlock (*Tsuga heterophylla*).

Conditions in the wide bottoms show a surprising resemblance to the humid Coast belt. Western red cedar (*Thuja plicata*) is the prevailing tree, varied by clumps of giant black cottonwood (*Populus trichocarpa*). The black-headed grosbeak (*Zamelodia melanocephala*), a characteristic Coast bird, is a regular summer resident.

Bird-life in these coniferous forests is not plentiful either in number of species or individuals. The following species could be called common and were undoubtedly all breeding:—

Spotted Sandpiper (*Actitis macularia*).
Western Redtail (*Buteo borealis calurus*).
Dusky Horned Owl (*Bubo virginianus saturatus*).
Pygmy Owl (*Glaucidium gnoma gnoma*).
Rocky Mountain Hairy Woodpecker (*Dryobates villosus monticola*).
Red-naped Sapsucker (*Sphyrapicus varius nuchalis*).
Northern Pileated Woodpecker (*Phlœotomus pileatus abieticola*).
Alaska Three-toed Woodpecker (*Picoides americanus fasciatus*).
Nighthawk (*Chordeiles virginianus virginianus*).
Kingbird (*Tyrannus tyrannus*).
Western Wood Pewee (*Myiochanes richardsoni richardsoni*).
Wright's Flycatcher (*Empidonax wrighti*).
Olive-sided Flycatcher (*Nuttallornis borealis*).
Magpie (*Pica pica hudsonia*).
Black-headed Jay (*Cyanocetta stelleri annectens*).
Pine Siskin (*Spinus pinus*).
Western Chipping Sparrow (*Spizella socialis arizonæ*).
Sooty Song Sparrow (*Melospiza melodia rufina*).
Spurred Towhee (*Pipilo maculatus montanus*).
Western Tanager (*Piranga ludoviciana*).
Tree Swallow (*Iridoprocne bicolor*).
Bank Swallow (*Riparia riparia*).
Red-eyed Vireo (*Vireosylva olivacea*).
Calaveras Warbler (*Vermivora rubricapilla gutturalis*).
Audubon's Warbler (*Dendroica auduboni auduboni*).
Redstart (*Setophaga ruticilla*).
Rocky Mountain Creeper (*Certhia familiaris montana*).
Red-breasted Nuthatch (*Sitta canadensis*).
Chickadee (*Penthestes atricapillus atricapillus*).
Mountain Chickadee (*Penthestes gambeli gambeli*).
Willow Thrush (*Hylocichla fuscescens salicicola*).
Olive-backed Thrush (*Hylocichla ustulata swainsoni*).
Western Robin (*Planesticus migratorius propinquus*).
Mountain Bluebird (*Sialia currucoides*).

KETTLE RIVER DISTRICT.

Through the courtesy of Mr. George P. Melrose, of the Forest Branch, the writer was enabled to accompany a timber-cruising party to the Kettle River Divide.

The party left Okanagan Landing for Penticton on September 25th, and reached Myra, on the Kettle River Railway, at noon of the next day. Camp was made close to the railway near Canyon Creek. Daily trips were made into the heavy forest on the north slope of Little White Mountain until October 1st, when the party returned to Vernon.

Conditions where field-work was conducted may be described as follows: A dense coniferous forest, sloping gradually east to the base of Little White Mountain and at a maximum altitude of 5,000 feet. The principal trees are Engelmann's spruce (*Picea engelmanni*), which greatly outnumbered the other species; balsam fir (*Abies lasiocarpa*); and Murray pine (*Pinus murray-*

ana). There was no undergrowth, but the fallen timber made travelling impracticable off the one trail. Owing to the lateness of the season no insects or plants were collected. The weather was cold and stormy and 2 inches of snow fell. A small collection of mammals, principally voles of the genus *Microtis*, was taken, and specimens of the following species of birds:—

Franklin's Grouse (*Canachites franklini*).
Gray Ruffed Grouse (*Bonasa umbellus umbelloides*).
Alaskan Three-toed Woodpecker (*Picoides americanus fasciatus*).
Rocky Mountain Jay (*Peresoreus canadensis capitalis*).
Lincoln Sparrow (*Melospiza lincolni lincolni*).
Rocky Mountain Pine Grosbeak (*Pinicola enucleator montana*).
Columbian Chickadee (*Penthestes hudsonicus columbianus*).
Mountain Chickadee (*Penthestes gambeli gambeli*).
Varied Thrush (*Ixoreus nævius nævius*).
Goshawk (*Astur atricapillus atricapillus*).

Richardson's Grouse (*Dendragapus obscurus richardsoni*) and Northern Raven (*Corvus corax principalis*) were seen, but none were secured.

During the early part of the summer and in the autumn the trapping of small mammals was systematically pursued, at varying altitudes, in every locality visited. The results were particularly gratifying. Series of several species of the genus *Microtis*, hitherto unrepresented in the Provincial collection, were taken; also large series of the following mice, voles, and shrews: *Evotomys gaperi, Microtis mordax, Microtis drummondi, Microtis nanus cannescens, Perognathus lordi, Peromyscus maniculatus artemisioe, Sorex obscurus, Sorex personatus*, and many others which have not yet been classified. Altogether 290 specimens were preserved, a detailed report of which is being prepared.

While a general collection of zoological material was attempted, particular attention was directed to the gathering of ornithological material and data. A check-list that will serve as a basis for future investigation is in the course of preparation. To determine the specific standing of the more mutable forms a considerable series of skins is required. The writer is pleased to report that a collection of the breeding species is now fairly complete for this locality. The series of each species includes breeding birds of both sexes, moulting adults and juvenals of both sexes in their various plumages.

Nests and eggs of the following species were taken:—

Holbœll's Grebe (*Colymbus holbœlli*).
Horned Grebe (*Colymbus auritus*).
Black Tern (*Hydrochelidon nigra surinamensis*).
Redhead (*Marila americana*).
Barrow's Golden-eye (*Clangula islandica*).
Richardson's Grouse (*Dendragopus obscurus richardsoni*).
Marsh Hawk (*Circus hudsonius*).
Nighthawk (*Chordeiles virginianus virginianus*).
Calliope Hummingbird (*Stellula calliope*).
Western Wood Pewee (*Myochanes richardsoni richardsoni*).
Alder Flycatcher (*Empidonax trailli alnorum*).
Magpie (*Pica pica hudsonia*).
Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*).
North-western Redwing (*Agelaius phœniceus caurinus*).
Western Meadowlark (*Sturnella neglecta*).
Brewer's Blackbird (*Euphagus cyanocephalus*).
Sooty Song Sparrow (*Melospiza melodia merrilli*).
Spurred Towhee (*Pipilo maculatus montanus*).
Lazuli Bunting (*Passerina amœna*).
Western Marsh Wren (*Telmatodytes palustris plesius*).
Redbreasted Nuthatch (*Sitta canadensis*).
Willow Thrush (*Hylocichla fuscescens salicicola*).
Olive-backed Thrush (*Hylocichla ustulata swainsoni*).
Western Bluebird (*Sialia mexicana occidentalis*).
Mountain Bluebird (*Sialia currucoides*).

The collection for the season numbered approximately as follows: 290 mammals, 528 birds, 1,118 insects, 10 reptiles and batrachians, 300 plants, 35 fishes, 40 sets of birds' eggs.

The writer wishes to take this opportunity of expressing his thanks to Mr. George Heggie, of Vernon, for permission to shoot over the property of the Land and Agricultural Company; to Mr. B. Thorlaeson; Mr. William Johnstone and Mr. H. R. Hanna, of the Commonage, for a similar privilege; and to Mr. George N. Gartrell, Deputy Game Warden, of Summerland, for his valuable assistance in securing certain specimens.

Some of the ornithological notes made during the past two years are as follows:—

HOLBŒLL'S GREBE (*Colymbus holbœlli*).

Found breeding commonly at Swan Lake on May 18th and June 8th, 1916. Twenty nests were found and three sets of fresh eggs were taken. The nests were composed of dead rotting vegetation, held in place by growing rushes, and floating, half-submerged, in water from 2 to 4 feet in depth. In some cases the eggs were partly or wholly covered when found, but usually were exposed. When a nest was visited both birds of the pair swam up and down in the open water 20 or 30 yards beyond the nest, showing no signs of alarm. A peculiar fact noted was that near every nest, generally within a few yards, there was invariably a coot's nest.

RED-THROATED LOON (*Gavia stellata*).

A juvenal female picked up dead on the shore of Okanagan Lake on November 22nd, 1915, is the first record of this species in the Okanagan. The body was in a very emaciated condition and the stomach and digestive tract empty and contracted.

EARED GREBE (*Colymbus nigricollis californicus*).

This species was first recorded from the Okanagan by Major Allan Brooks on April 17th, 1914. Another individual was seen by the writer two weeks later and was again noted on May 27th, 1915.

BLACK TERN (*Hydrochelidon nigra surinamensis*).

Usually a scarce, irregular migrant. On May 18th, 1916, a breeding colony of twenty pairs (estimated) was observed at Swan Lake. On June 8th three sets of fresh eggs were taken. The nests consisted of a few pieces of water-soaked rushes or other aquatic plants, resting on the floating mass of dead tules that had drifted against the outer fringe of marsh. This bed of flotsam, anchored securely to the growing tules and rising and falling on the waves, without wetting its upper surface, formed an ideal nesting-place. While hunting for the nests, breast-deep in mud and water, the terns kept flying about in restless excitement, often within arm's length.

BLUE-WINGED TEAL (*Querquedula discors*).

Once fairly common throughout the Interior of British Columbia, this species has been of rare occurrence in the Okanagan during the past ten years. Five individuals were seen during May, 1915, and three of them secured.

CINNAMON TEAL (*Querquedula cyanoptera*).

Rare summer resident. Five were seen at Swan Lake on May 18th, 1916.

REDHEAD (*Marila americana*).

Found breeding at Swan Lake. On June 8th a nest with four fresh eggs was taken on the side of a musk-rat house. The hollow containing the eggs was well lined with dry tules, but as the female had not laid her complement of eggs, no down had been added. This is the commonest duck on Okanagan Lake during the winter; large flocks gather in the shallow water at the north end of the lake, reaching the maximum number about February 15th.

BARROW'S GOLDEN-EYE (*Clangula islandica*).

A common summer resident. A series of skins collected includes an adult male and half-grown and immature birds of both sexes. Usually for a nesting-site this species selects an old woodpecker's hole that has become enlarged by decay, and generally in a tree close to the shore of a small lake. On May 12th, 1916, a nest containing eleven fresh eggs was found in the hay-loft of a log barn built on the shore of an alkaline lake. The nest was concealed in the hay under one of the big cross-beams. The loft was open in many places between the logs; there was also a large opening at the end of the building, and through this the female visited the nest.

BUFFLE-HEAD (*Charitonetta albeola*).

A common resident. A set of ten partly incubated eggs was taken on May 22nd, 1915. The nest was in an old flicker's hole, 40 feet from the ground, at the top of a dead Douglas fir on the shore of a small alkaline lake. The cavity was much enlarged by decay, and at a touch the whole side pulled away and exposed the eggs in their bed of down. The same nest had evidently been used for several years, as there were fragments of old shells in the bottom of the hole and mixed through the down.

LONG-BILLED DOWITCHER (*Macrorhamphus griseus scolopaceus*).

An adult male in summer plumage taken on July 30th, 1915, and two immature males taken on September 9th, 1916, are the only Okanagan records.

LEAST SANDPIPER (*Pisobia minutilla*).

Common fall migrant. None observed during spring migrations until May 6th, 1916, when five were seen. A few seen daily until May 11th.

YELLOW-LEGS (*Totanus flavipes*).

Common fall migrant. None observed during spring migrations until May 6th, 1916, when one was seen which remained in the vicinity until May 11th.

RICHARDSON'S GROUSE (*Dendragopus obscurus richardsoni*).

On May 3rd, 1916, a nest containing ten fresh eggs was found under an old rail fence. The nest was a shallow depression in the ground 8 inches in diameter and 5 inches deep, well lined with pine-needles and grouse-feathers. A nest with seven partly incubated eggs was found in a similar situation on May 13th, 1915.

MARSH HAWK (*Circus hudsonius*).

Two pair found breeding at Swan Lake. Nest and eggs taken on May 15th and May 18th. The nests were loosely constructed of sticks, weed-stalks, and dry grass, built in the marsh 20 yards from shore. The tules had been beaten down for a distance of 3 feet around the nest, forming a small clearing in the marsh.

GOSHAWK (*Astur atricapillus atricapillus*).

All specimens taken here appear to be referable to this form. Both adults and young are much paler than examples of *striatulus* from the Coast.

PYGMY OWL (*Glaucidium gnoma gnoma*).

Common summer resident, more plentiful in the region of Murray pine and larch. A nest containing seven downy young was found in a deserted woodpecker hole, 30 feet from the ground, in a dead larch, on June 9th, 1915.

ARCTIC THREE-TOED WOODPECKER (*Picoides arcticus*).

Resident in the Canadian Zone. Less common than *fasciatus*. A breeding female was taken on the Nahun Plateau on May 30th, 1916.

ALASKA THREE-TOED WOODPECKER (*Picoides americanus fasciatus*).

A common resident in the Canadian Zone, preferring the burnt areas of spruce and larch. Taken on the Nahun Plateau, at Shuswap Falls, and Little White Mountain. A juvenal male collected at Shuswap Falls on June 17th showed the yellow crown patch, but more restricted than in the adult male.

OLIVE-SIDED FLYCATCHER (*Nuttallornis borealis*).

A common summer resident in the Canadian Zone. Taken on the Nahun Plateau and at Shuswap Falls.

YELLOW-HEADED BLACKBIRD (*Xanthocephalus xanthocephalus*).

Several breeding colonies found at Swan Lake, the only locality in this region where the writer has found them breeding. An example of how very local some species are in mountainous countries: On May 15th a number of incompleted nests were found, and on June 8th four sets of eggs were taken. The nests are more loosely constructed than those of the North-western Redwing, and are lined with flat pieces of tule fibre. Those of the North-western Redwing are lined with coarse grass. Nests of both species were found close together and they made common cause in driving away crows, marsh hawks, and other marauders from the vicinity of the nests. In common with other blackbirds, the males of this species have the habit, when uttering their harsh grating song, of elevating the shoulders and erecting the feathers until the singer appears twice his natural size.

WESTERN GRASSHOPPER SPARROW (*Ammodramus savannarum bimaculatus*).

This handsome, unobtrusive little sparrow is common locally breeding on the dry, open hill-sides above Vernon. They arrive early in May and remain until the second week in October; one of the last sparrows to leave in the fall. Contrary to the published accounts of this bird's habits, it is the writer's experience that the males generally sing while on the ground or hidden in a thick clump of sage-brush. On only two occasions has the writer heard it singing while clinging to a weed-stalk or bush in full view. A series of skins collected includes breeding males, moulting adults, and juvenals.

SLATE-COLOURED JUNCO (*Junco hyemalis hyemalis*); **SHUFELDT'S JUNCO** (*Junco hyemalis connectens*); **MONTANA JUNCO** (*Junco hyemalis montanus*).

These three subspecies occur here as migrants; also another form, evidently intermediate between *oreganus* and *connectens*. The breeding form has not yet been determined.

BLACK-HEADED GROSBEAK (*Zamelodia melanocephala*).

An adult male taken on August 24th, 1916, is the only local record. Major Allan Brooks found the species breeding in the Shuswap District, but it was not observed by the writer.

TOWNSEND'S WARBLER (*Dendroica townsendi*).

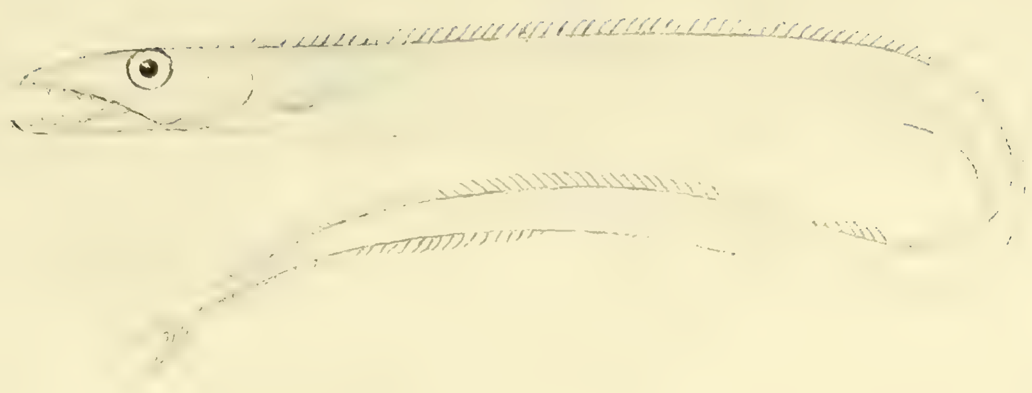
Of regular occurrence during migrations at Okanagan Landing; also taken on the Nahun Plateau on May 30th, where it appeared to be common.

FISHES.

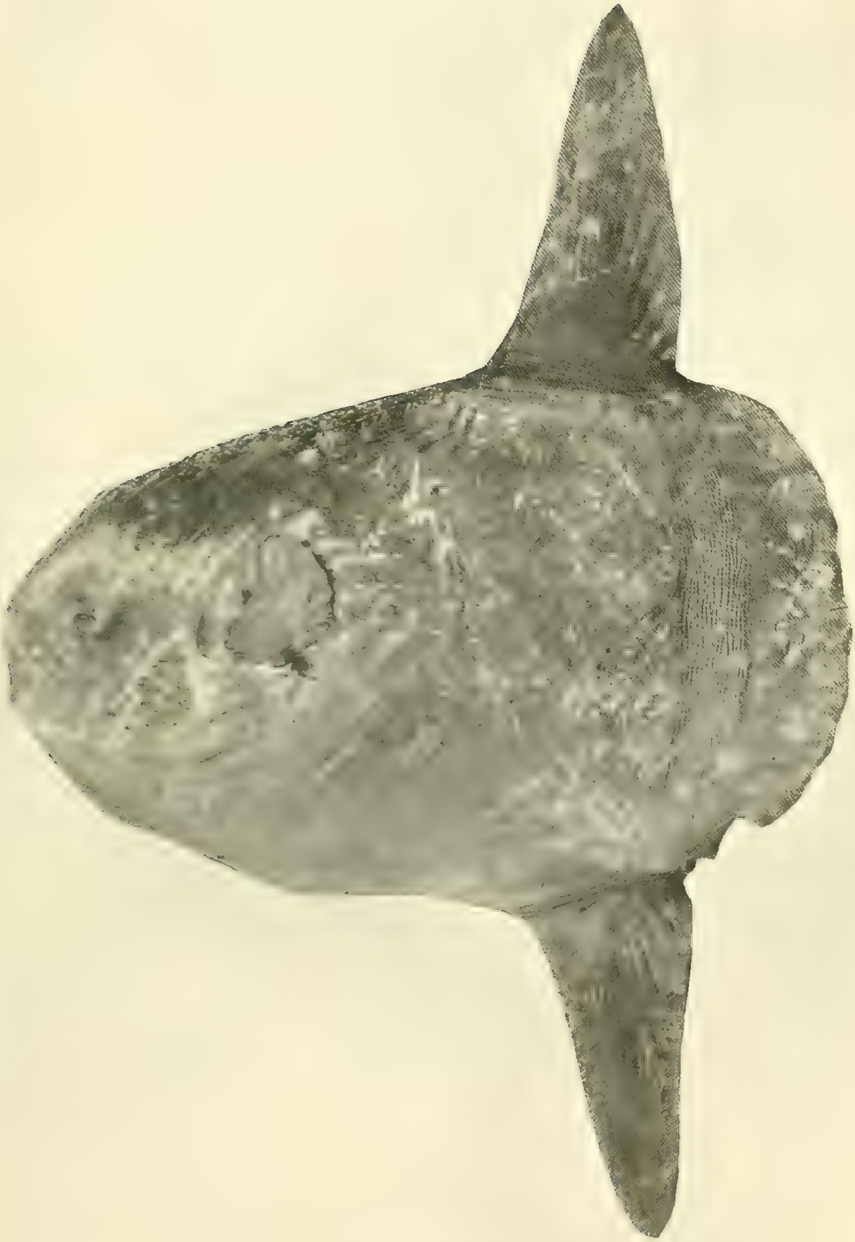
Early in the month of June the Director drew the attention of Dr. C. H. Gilbert, of Stanford University (who was visiting the Museum), to a strange fish that had been caught and presented to the Museum by the Bentinck Island fishermen, near Race Rocks, Strait of Juan de Fuca, about ten miles south of Victoria. Dr. Gilbert noticed at once that the specimen was one that he had never seen in this portion of the Pacific, and identified it as a species of *Benthodesmus;* also suggesting that I send it to him at Stanford University, along with other fishes, which he would be pleased to examine and identify for this Department upon his return to California. The extract from his letter of November 27th, 1916, is here quoted:—

"The long silvery fish which you showed me last summer turns out to be a *Benthodesmus*, as we thought at the time. There are three other species of this genus known—one from New Zealand, one from Japan, and one from the Atlantic; each of these is known from a single specimen. A careful comparison with the brief description indicates that your specimen cannot be identified with either of the known species from the Pacific, but the differences from the Atlantic species are so small in amount that I do not care to risk describing it as a distinct species. This is the more unfortunate that the Atlantic species has received the name 'atlanticus.'"

PLATE III.



Benthodesmus atlanticus. Specimen in Provincial Museum, Victoria, B.C.



Sunfish (*Mola mola*).

Note.—The United States National Museum, Washington, have accepted for publication the notes prepared by Dr. C. H. Gilbert, announcing the discovery of this interesting species *Benthodesmus* in the Pacific.

The *Benthodesmus atlanticus* is uniform silvery in colour throughout, with traces of dark colour on the head and tail—length, 41½ inches—and was caught by fishermen fishing for cod near Victoria on May 30th, 1916. (F. K.)

"The only other known specimen was taken from the stomach of a halibut caught on the western edge of the Grand Bank of Newfoundland in 80 fathoms." (Goode & Bean.) (*See* Plate III.)

ON THE OCCURRENCE OF *BENTHODESMUS ATLANTICUS* (GOODE & BEAN) ON THE COAST OF BRITISH COLUMBIA.

By Dr. C. H. Gilbert, Professor of Zoology, Standard University, Cal.

A specimen of *Benthodesmus*, 41½ inches long, was obtained on May 30th, 1916, from a fish-dealer in Victoria, B.C., having been caught by fishermen off Bentinck Island, which lies near Race Rocks, about ten miles by water from Victoria. The specimen is the property of the Provincial Museum of Victoria, and has been submitted to us for identification by Mr. F. Kermode, the Director of the Museum.

Description: Greatest width of body, 2⅔ in height at vent. Length of caudal peduncle, half greatest height of body. Least height of tail, ⅓ bony interorbital width. Greatest width of head, ⅙ its length. Greatest height of head, 3¾ in its length. Width of interorbital area (bony), ¼ height of head. Length of snout, 2¼ in head. Tip of maxillary not reaching the orbit, the length of maxillary equalling the postorbital part of head. Length of lower jaw, 1⅞ times greatest height of body. Flexible part of mandibular tip short in the preserved specimen, about ¼ diameter of orbit. Eye postmedian, 5⅓ in head, 2⅓ in length of snout.

Sides of maxillary with nine or ten triangular teeth, which decrease from middle of sides of jaw both forwards and backwards. Two pairs of narrow compressed fangs in the anterior part of the upper jaw, the anterior pair immediately behind the tip, the posterior pair separated by a considerable interspace, but located in front of the series of compressed lateral teeth already described. In advance of the most anterior of the compressed lateral teeth a series of six or seven short slender conical teeth continued forwards to the anterior pair of fangs and passing outside the posterior pair of fangs. Side of mandible with fourteen or fifteen compressed triangular teeth in a single series, decreasing in length forwards, and inclined slightly towards the front of the jaw. In advance of these, on each side of the symphysis, are two pairs of short retrorsely directed teeth, the anterior pair much shorter than the posterior pair. Other bones of the mouth toothless.

First gill-arch with four or five or seven or eight slender short distant rakers, the longest about 2 mm. in length. Each rise from a plate which bears short spines, and between each pair of these plates, on the outer surface of the arch, are interposed two similar smaller plates which do not bear rakers. The rakers are borne only on the posterior third of the horizontal limb of the arch, but the spinous plates are continued farther forwards, and become merged along the anterior part of the arch in a narrow spinous strip. The other arches are similar to the first, but contain fewer free rakers. The upper pharyngeals are well toothed and work against the spinous plates on the horizontal limbs of the arches.

First dorsal ray slightly in advance of the middle of the operculum, the front of the orbit midway between the first ray and the tip of the snout. There are 142 rays in all, the posterior the longest. The rays rise from the anterior ends of a series of interneural bones which form a sharp ridge along the dorsal profile.

The vent is beneath the 46th dorsal ray, its distance from the tip of the snout $3^1/_7$ times the length of the head. Distance from vent to postanal scute, ⅚ diameter of orbit. Immediately behind the scute begins a series of eighty-eight interhæmals, which forms a continuous sharp ridge along the lower profile. The anterior ones bear no rays, but these gradually appear posteriorly, about forty of the posterior plates bearing evident free rays, which increase in length posteriorly.

The pectorals contain twelve rays, the lower distinctly the longest, equalling the postorbital length of the head. Ventrals mutilated, their base posterior to that of pectoral by ⅖ diameter of orbit. Caudal deeply forked, its longest ray equalling the diameter of the orbit. Color silvery, becoming posteriorly steel-grey, and finally black. Lips black, as are also the inside of the mouth and the gill-cavity, including the gill-arches. Peritoneum also black.

One specimen, 41⅛ inches long, the property of the Provincial Museum of British Columbia.

Benthodesmus elongatus (Clarke) from New Zealand differs notably from this species in the much more elongate form, the depth scarcely exceeding one-fortieth of the length. The third species of the genus *B. tenuis* (Guenther) from Japanese waters has much shorter vertical fins, the dorsal having but 126 rays and the anal but 71 rays. The specimen in hand differs in only minor respects from the description of *B. atlanticus* given by Goode & Bean. The width of the body is slightly greater, 2⅔ in its height; the snout slightly longer, its 2¼ in the head; the mandibular tip shorter, ¼ the orbit; the eye smaller, 2⅓ in the snout. And there are four long teeth in the upper jaw, instead of three. The species has been known hitherto from a single specimen.—*Smithsonian Miscellaneous Collections, Vol. 66, No. 18.*

In addition to the record in last year's report, there has been a second occurrence of the sunfish (*Mola mola*) in British Columbia waters. The specimen was caught by an Indian, Charles Stewart, off the coast of Princess Royal Island (which is about 450 miles north of where the first specimen was secured on Barkley Sound, V.I.); the second specimen was also secured and forwarded to the Museum by Mr. N. E. Wheeling, Butedale Cannery, at Butedale, B.C.

The sunfish in colour is a dark grey; sides greyish-brown, with silvery reflections; belly dusky; a broad blackish bar running along bases of dorsal, caudal, and anal fins. Pelagic, inhabiting most temperate and tropical seas, swimming slowly about near the surface, the high dorsal above the surface. (*See* Plate IV.)

The following is a list of species of fishes which the Director sent to Dr. Gilbert for identification:—

Two species of whitefish, *Coregonus quadrilateralis* and *Leucichthys pusillus*, collected by F. Kermode in Atlin Lake, September 29th, 1913; Menominee whitefish (*Coregonus quadrilateralis*), sent from Carcross, Yukon, by W. T. Townsend; *Mylochilus caurinus*, *Ptychocheilus oregonensis*, *Coregonus williamsoni*, collected by J. A. Munro, Okanagan Lake; *Leuciscus richardsoni*, *Ptychocheilus oregonensis*, *Cottus asper*, *Salmo gairdneri*, *Rhinichthys cataractæ*, collected near Hanceville by W. A. Newcombe; *Salvelinus malma*, collected at Edgewood, Lower Arrow Lakes, by G. E. T. Pittendright; *Salmo gairdneri*, *Salmo mykiss*, collected by W. R. Carter, Deputy Game Warden, Alberni.

Giant bass (*Erilepis zonifer*). This fish was presented to the Museum by A. L. Hager, manager of the Canadian Fishing Company, Vancouver, who also kindly gave permission to reproduce the accompanying photograph, which gives the comparison of its great size.

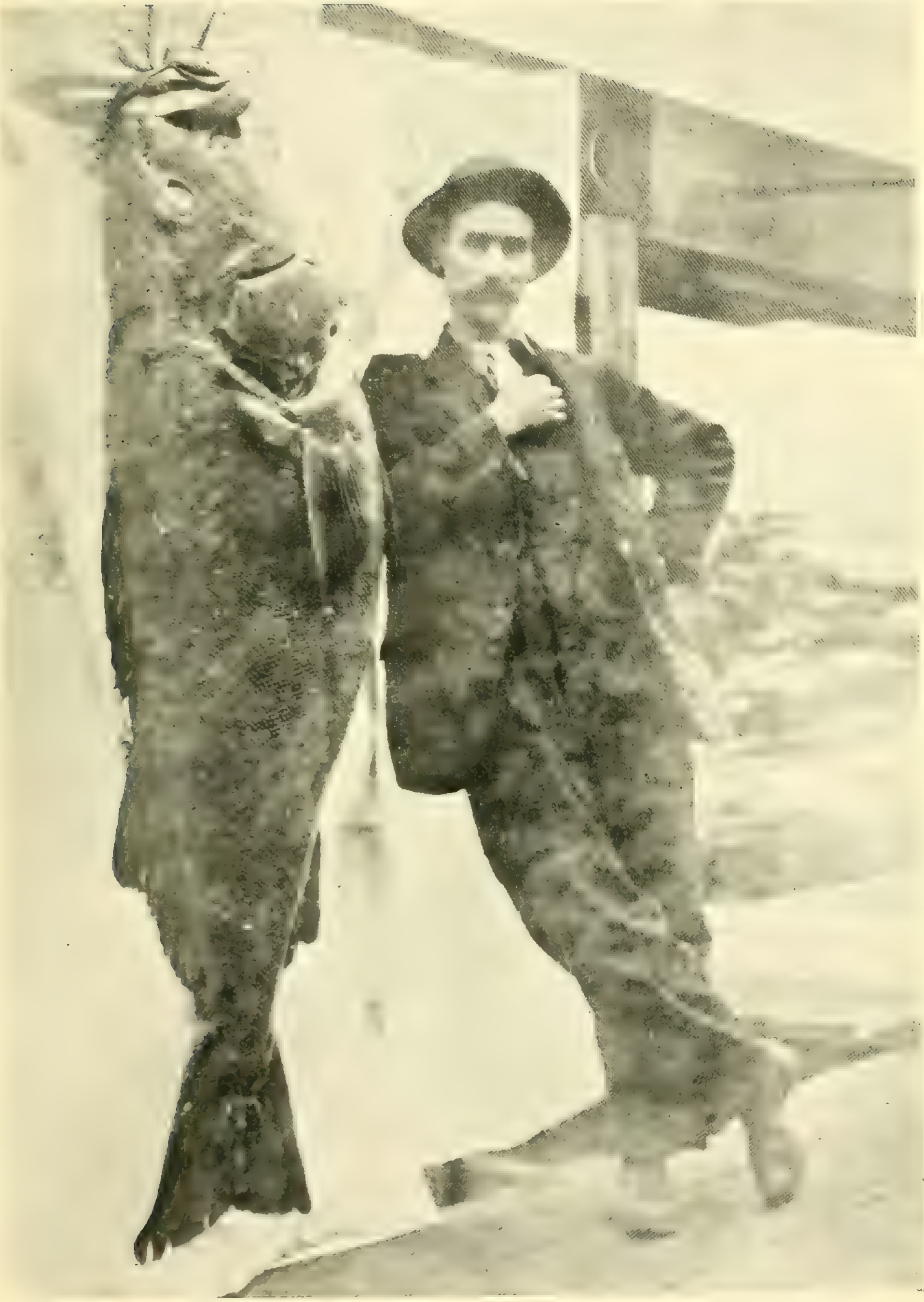
The *Erilepis* weighed when taken from the water 159 lb.; measured 5 feet 9½ inches in length and 19 inches in depth; was caught on halibut gear, the hooks being bated with herring, in 200 fathoms of water off the west coast of Queen Charlotte Islands, fifteen miles from Tasu, by the Canadian Fishing Company's schooner "Borealis," Captain Chris. Johnson. (*See* Plates V., VI.)

FURTHER NOTES ON *ERILEPIS*, THE GIANT BASS-LIKE FISH OF THE NORTH PACIFIC.

By William F. Thompson, of Stanford University.

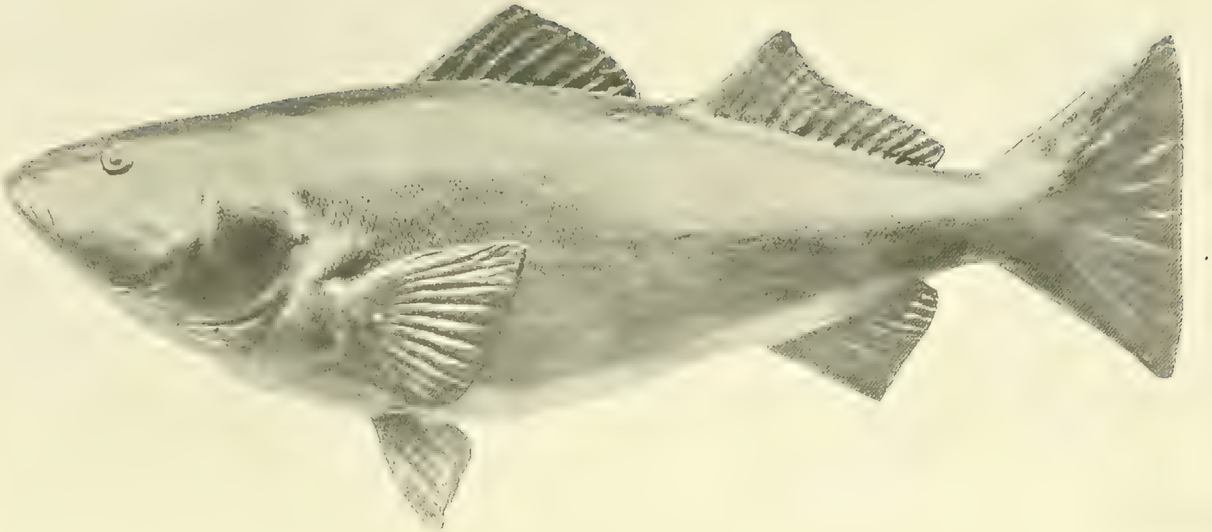
In Copeia for April 24th, 1916 (No. 30), the writer noted the second occurrence of *Erilepis zonifer* (Lockington) in the North Pacific. Since then several interesting facts have come to light concerning this huge fish that have modified what was previously said. It is especially noteworthy that there is no special reason for believing the fish a stray from Japan, as has been conjectured.

According to one of the fishermen, the specimen already recorded has been taken in South-eastern Alaska, in one of the long inland straits which form the inland passage, either in Frederick Sound or Chatham Strait: The captain of the halibut-schooner, when seen at a later date, stated positively that the specimen was taken off the western coast of the Queen



Giant Bass (*Erilepis zonifer*). Weight, 159 lb., and measured 5 feet 9½ inches.

PLATE VI



Giant Bass (*Erilepis zonifer*). From a cast in Provincial Museum, Victoria, B.C.

Charlottes, near the northern end. His record is undoubtedly correct, and it is evident that *Erilepis* was taken on the continental shelf, rather than in enclosed waters.

While in Vancouver during November, at the plant of the Canadian Fishing Company, the writer was shown two other specimens of this fish.

Under the heading of "A Freak Fish," a statement with a photograph of the larger was given in the *Pacific Fisherman* for November, as follows:—

While the halibut-schooner "Borealis" was fishing with halibut-trawls in 240 fathoms of water in Rennel Sound, on the west coast of Queen Charlotte Island, British Columbia, during October, a fish which weighed, in the round, 175 lb., and when dressed 145 lb., was caught. It measured 5 feet 10 inches in length. The opinion was expressed that it was "a large sea-bass" from Southern Pacific waters. Through the kindness of the company manager a smaller specimen caught at the same time was sent to Stanford University in a frozen condition. There it has been carefully examined and compared with a Japanese specimen, undoubtedly the same species.

It will be noted that the locality was the same as the corrected one for the first specimen. The probability is that there is an available explanation for the occurrence. In the region indicated the continental shelf drops with great rapidity to oceanic depths, and a halibut-trawl set in 150 fathoms on its shoreward end frequently drops as far as its buoys will allow it on the seaward end. This may be as much as 400 fathoms. It has only been in recent years, particularly in the winter, that halibut-fishing has been carried on in depths of 140 fathoms and more, as has been shown in the reports of the British Columbia Commissioner of Fisheries for 1915. The cousin of the present species, the Alaska black cod (*Anoplopoma*), inhabits considerable depths also, and in the last few years more of them are being caught by the halibut-boats. The fishermen even occasionally bring up Macrouroid species, formerly utterly unknown to them. This "rare fish" then has perhaps been caught by the fishermen while they were utilizing unusual depths, and it may well be common and relatively abundant in its peculiar habitat.

The Japanese fishermen, it is worthy of note, fish their waters more closely than is done on our coasts, and Dr. Jordan and Professor Snyder say: "According to Kuma Aoki, an intelligent fisherman of Misaki, it is occasionally taken in the Kuro Siwo, it is not rare, and reaches the weight of 200 lb. Although so rare in collections, the species is well known to the fishermen." There is no good reason why more extensive exploitation of our fishing-ground will not bring to light at least an abundance equal to that of the species in Japan. It is hence unjust to call the fish a "stray," and one must be reserved in calling it "rare." Since the only specimens known to be preserved in museums have come from Japan, and the type of the species (from Monterey, California) which was in the collection of the California Academy of Sciences in San Francisco has been destroyed, the following notes regarding the specimens now at hand are appended:—

The fish, 112 cm. in total length and 98 to base of caudal, is bass-like, with massive head and rotund body; its width ⅔ its depth, but with somewhat slender caudal peduncle, nearly round and quickly tapering. The interorbital is wide, convex, and the preorbitals are prominent, nearly overhanging. The eyes are small, slightly oval lateral in outlook, and over a wide suborbital. The maxillary ends below the centre of the pupil. The lower jaw projects somewhat, its tip lying in the axis of the body, continues the profile lines of the head and body, which taper anteriorly and posteriorly.

The teeth are in a band six or seven series wide anteriorly in the upper jaw, four or five below, narrowing posteriorly; recurved, slender, and sharp; none of them canine-like or enlarged; in a V-shaped patch on vomer; in narrow bands on palatines.

The gill-arches and viscera were removed when the fish was frozen.

The dorsals are apparently separated by the space of two spines, but dissection shows these to be present, buried below the thick skin; two anterior spines are very short; the third is the longest, with the margin of the fin falling straightly to the first buried spine. Preceding the soft rays are two unjoined rays (or spines), closely applied to the third. The soft dorsal is highest at the fifth ray, slightly amarginate in outline. When supine the longest dorsal ray reaches over the bases of the seven following rays, while at the similarly shaped anal reaches to the base of the last. The last rays in both fins are less in length than the eye diameter.

The pectorals are a little falcate in shape, and extend back to the pevel of the eighth dorsal spine. The ventrals are inserted a short distance behind the pectorals.

Scales are present everywhere on exposed surfaces save the lips, edges of fins, membranes of spinous dorsal, edges of branchiostegal flaps, and the inner surfaces of paired fins; rough to touch, they are not roughly ctenoid; they appear non-imbricate because buried deeply.

The colour is very dark, save for projecting whitish edges of scales; only traces of dark bands are present, one as wide as ⅔ of the head-length lying under the pectorals, three others of equal width respectively just before the vent, over the posterior ⅔ of the anal, and on the caudal peduncle. Ventrally the body is not markedly lighter than dorsally. The peritoneum is scraped away, but the buccal lining shows very dark. Lips and the fin edges are black, with strong tinges of blue.

The measurements follow: Head, 0.32 of length to base of caudal; 0.30 depth; body width, 0.19; eye, 0.045; maxillary length, 0.13; width, 0.032; suborbital width, 0.04; snout length, 0.11; mandible, 0.16; interorbital, 0.12; pectoral base, 0.075; length, 0.18; ventral, 0.125; third dorsal spine, 0.085; fifth dorsal ray, 0.11; last, 0.037; fifth anal ray, 0.12; last, 0.037; soft dorsal base, 0.25; anal base, 0.16; depth of caudal peduncle, 0.085; width, 0.07; dorsal rays, XIII., 11, 17; anal, 11, 13; pores in lateral line, 126; scales from lateral line obliquely forward and upward to dorsal insertion, 30; downward and backward to anal, 51; pectoral rays, 19; branchiostegals, 7.—(*Published by permission of J. P. Babcock, Assistant to the Commissioner of Fisheries.*)

ENTOMOLOGY.

The season of 1916 was a very poor one from an entomological point of view, owing to the abnormal weather conditions experienced during the first part of the year. The spring was late in opening up, and the weather was cold and wet until well on in May. In addition, the Lower Mainland and the southern portion of Vancouver Island were visited by exceedingly cold winds which prevailed, more or less, until the end of July. Owing to these conditions there was a dearth of the early insects, and this adverse influence was felt right throughout the summer, causing collections to be far below normal, both in quantity and quality. However, in spite of this, many desirable insects were taken at various points, some of them being new to the Province.

LILLOOET DISTRICT.

Mr. E. M. Anderson, of the Museum staff, collected in the vicinity of Lillooet from the beginning of May until the end of July. Headquarters were established at the Provincial Government Hatchery at Seton Lake, about three miles from Lillooet.

On May 21st a trip was made over the Blackwater Trail about thirty miles from Seton Lake, starting in at the southern end of Anderson Lake and finishing at Blackwater Lake, getting back to headquarters on June 3rd.

An ascent of Mount McLean, which is situated eight miles north of Seton Lake, was made on July 15th, and many good things were taken during the twelve days' sojourn on the mountain, at altitudes varying from 2,000 to 7,000 feet, chief of which was that very rare mountain butterfly, *Oeneis beanii* Elwes. The only previous record of this butterfly for British Columbia is Mount Cheam, near Chilliwack; its type locality is the Rocky Mountains of Colorado.

The total number of insects taken on the trip numbered 1,065, made up as follows: Lepidoptera, 510; Coleoptera, 251; Hymenoptera, 71; Diptera, 157; and 76 of various other orders.

The most noteworthy captures amongst the butterflies, of which 157 were taken, in addition to the one noted above, were: *Pontia napi flava* Edw.; *Phyciodes mylitta pallida* Edw.; *Incisalia polios* Cook & Watson; *Strymon sæpium* Bdv.; and *Pamphila juba* Scud. Amongst the *Sphingidæ*, two specimens of that beautiful little sphinx, *Prosperinus clarkiæ* Bdv. were taken. The noctuids on the whole were disappointing, as sugaring was a complete failure owing to the cold winds prevailing at the time of their greatest abundance. In the early part of May, however, cherry-blossoms were attractive to a few species, and a long series of *Polia crotchii* Grote was taken (a moth new to British Columbia), also a fair series of *Xylomiges perlubens* Grote. Other noctuids taken during the season and worthy of special mention are: *Sidemia longula* Grt.; *Oncocnemis extremis* Em.; *Spargaloma sexpunctata* Grt.; *Syneda alleni* Grt.; and *S. hudsonica* G. & R. The Geometridæ made a better showing: 153 specimens were captured, comprising thirty-eight

PLATE VII.

NOCTUIDÆ NEW TO BRITISH COLUMBIA.

Catocola faustina race *cærulea* Bent.
Okanagan Landing. B.C. (Munro).

Apatela tartarea Sm.
Cowichan Lake. B.C. (Blackmore).

Bomolocha palparia Walk.
Goldstream. B.C. (Blackmore).

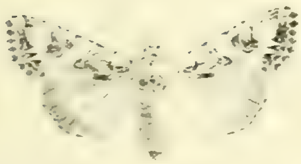
Scotogramma trifolii race *albifusa* Walk.
Victoria. B.C. (Blackmore).

Polia crotchi Grote.
Lillooet. B.C. (Anderson).

Euxoa andera Sm.
Okanagan Landing. B.C. (Munro).

Epidemas melanographa Hamp.
Victoria. B.C. (Blackmore).

PLATE VII.



species, the following being new to the Museum collection, viz.: *Hesperumia sulphuraria* form *baltearia* Hulst; *Paraphia subatomaria* Wood; *Sabulodes cervinaria* Pack.; and *S. forficaria* Gn. Other desirable species taken were as follows: *Epirrhœ alternata* Mull.; *Xystrota hepaticaria* Gue.; *Acidalia fuscata* Hulst; *Bapta semiclarata* Walk.; *Dasyfidonia avuncularia* Gue.; *Drepanulatrix falcataria* Pack.; *D. pulveraria* Hulst; and *Spodolepsis substrialaria* var. *danbyi* Hulst. Amongst the Microlepidoptera, *Pyrausta funebris* Strom. and *Adela septentrionella* Wals. were the most noteworthy. The Coleoptera, Hymenoptera, and Diptera have not, as yet, been worked over, but there are many in each order new to the Museum collections.

Okanagan District.

Mr. J. A. Munro collected in the neighbourhood of Okanagan Landing from April 20th until September 28th.

Trips were made to the Nahun Plateau, twenty miles south of Okanagan Landing, where some good insects were taken at an altitude of 3,200 feet. In June five days were spent at Shuswap Falls, about thirty miles east of Vernon; the insect fauna here is somewhat different from that in the vicinity of Okanagan Landing, and a representative collection of some 200 insects were taken during the week. The total number of insects taken during the season was 1,118, comprising: Lepidoptera, 730; Coleoptera, 184; Hymenoptera, 101; Diptera, 45; and 58 of various other orders. Amongst the butterflies worthy of notice were *Parnassius smintheus* var. *magnus* Wright; *Papilio bairdii* var. *oregonia* Edw.; *Argynnis leto* Behr.; *A. meadii* Edw.; *Œneis chryxus* Db.-Hew.; *Nomiades lydgamas* var. *oro* Scud.; *Cupido icarioides* var. *pembina* Edw.; *Erynnis comma* var. *manitoba* Scud.; and *Pholisora catullus* Fab.

(In the above list *N. lydgamas* var. *oro* Scud. is new to British Columbia; it has been probably associated with *N. lydgamas* var. *behrii* in Mainland collections, the males of these two forms bearing a close resemblance to each other. They are in the males differentiated by the much paler blue of the upper side of *oro;* in the females they are more easily separated, *oro* being of a uniform smoky brown with a few blue scales scattered at the base of the wing, while *behrii* is blue with a broad black border. The ground colour of the under side of *oro* is brown, that of *behrii* a light stone colour; the maculation is practically the same in both forms. *Cupido icarioides* var. *pembina* is also a new name to the British Columbia list. This insect has been masquerading under no less than four different names during the last fifteen years—viz., *pheres*, *fulla*, *phileros*, and *lycea*.)

The weather conditions were much better during the summer months in the Okanagan District than they were west of the Cascade Range; consequently the noctuid moths taken were greater, both in number and variety, than those taken in the Lillooet District during the same period. In the Catocalæ two species were taken new to British Columbia—a short series of *Catocala faustina* var. *cœrulea* Edw. and a single specimen of *C. californica* Hy. Edw. A beautiful specimen of the rare *C. relicta* Walk. was also taken at sugar on August 25th.

Other specimens worthy of record are the following: *Caradrina extimia* Walk.; *Rhynchagrotis rufipectus* Morr.; *R. variata* Grt.; *Abagrotis erratica* Sm.; *Porosagrotis catenula* Grt.; *Mamestra discalis* Gue.; *Heliothis scutosus* Fabr.; *Heliaca nexilis* Morr.; and *Syneda annexa* Hy. Edw.

The Geometridæ were far below the average both in quantity and quality, although two species new to the Museum collection were taken—*Eudule mendica* Walk. and *Sabulodes lorata* Grt. Other desirable species taken were *Cosymbia lumenaria* Hub.; *Acidalia subfuscata* Taylor; and *Metanema inatomaria* Guen.

The Coleoptera, Hymenoptera, and Diptera still await classification and determination. Many of them, however, are new to the Museum collections, especially in the order Coleoptera.

Victoria District.

The following list of noctuids taken in the vicinity of Victoria during the past season by Mr. E. H. Blackmore, of this city, are of more than passing interest, as the first three are new to British Columbia, while the others are of rare occurrence: *Rhynchagrotis morrisonistigma* Grt.; *Scotogramma trifolii* var. *albifusa* Walk.; *Bomolocha palparia* Walk.; *Cerma cuerva* Barnes; *Hadena plutonia* Grt.; *Epidemas melanographa* Hamp.; *Polia radix* Walk.; *Pyrophila tragopoginis* Linn.; *Adelphagrotis apposita* Grt.; *Euxoa costata* Grt.; *Polia restora* Sm.; *Zosteropoda hirtipes* Grt.; *Stretchia muricina* Grt.; *Xylina dilatocula* Sm.; *Helotropha reniformis* Grt.; and *Ipimorpha nanaimo* Barnes.

Amongst the Geometridæ the same collector took a specimen of *Hydriomena furcata* var. *periclata* Swett. This is the first record for British Columbia of this insect, its type locality being San Francisco, Cal.; also two specimens of *Ania limbata* Haw., and one specimen of *Metanema inatomaria* Gue. These are the first captures of these two geometers that have been recorded for over twelve years from this district.

GEOMETRIDÆ NEW TO SCIENCE.

Through the activities of Mr. E. H. Blackmore, who is still pursuing his studies of the British Columbia Geometridæ, two species and four varieties new to science have been discovered. They have been described by Mr. L. W. Swett, the well-known geometrid specialist of West Somerville, Mass., the descriptions appearing in the *Canadian Entomologist*, Vol. XLVIII., page 249 *et seq.* (July, 1916), and Vol. XLIX., page 64 *et seq.* (February, 1917), and are here illustrated for the first time. (*See* Plate VIII.)

They are as follows: *Nomenia obsoleta* Swett, described from three specimens taken at Goldstream and Victoria, B.C., found in the collection of the late Captain R. V. Harvey, and one specimen found in the Provincial Museum collection taken at Victoria, and all dated April, 1908. The latter was made a male paratype and is now in the exhibition collection of the Museum; *Hydriomena californata* ab. *niveifascia* Swett, described from two specimens—one taken at Goldstream and the other at Victoria—found in the collection of the late Captain Harvey; *Diastictis andersoni* Swett, described from three specimens taken by E. M. Anderson on his trip to Atlin, B.C., in 1914. A male paratype of this new species is also in the Museum exhibition case; *Dysstroma mulleolata* ab. *sobria* Swett, described from a single male taken by E. H. Blackmore at Victoria in June, 1914; *D. mulleolata* ab. *subumbrata*, Swett, described from five specimens taken by Mr. Blackmore at Victoria in June and July, 1914-15; and *D. mulleolata* ab. *ochrofuscaria* Swett, described from specimens taken by Mr. E. H. Blackmore at Victoria, B.C., and by Mr. G. O. Day and Mr. A. W. Hanham, at Duncan, B.C.

Mr. Blackmore has kindly donated to the Museum collection a female paratype of *D. mulleolata* var. *subumbrata* Swett, and a typical specimen of *D. mulleolata* var. *ochrofuscaria* Swett.

CORRIGENDA AND ADDENDA.

Owing to a further examination of the types of North American butterflies by that eminent lepidopterist, Dr. J. McDunnough, of Decatur, Ill., two of the species figured in the Provincial Museum Report for 1915 have been found to be named incorrectly.

Parnassius smintheus var. *nanus* Neu. (page 16 and Figs. 2 and 3, Plate VIII.) should be corrected to *Parnassius smintheus* Db.-Hew. (*vide* Cont. Lep. No. Amer., Barnes & McDunnough, Vol. III., No. 2, Dec., 1916). The specimens taken at Atlin in 1914 are identical with the type specimens in the British Museum taken by Lord Derby in the Canadian Rockies. The aberration *nanus* Neu. occurs in the male only, and is distinguished by having the two red occelli on the secondaries replaced by one black spot.

Brenthis frigga var. *improba* Butler (page 16 and Figs. 8 and 9, Plate VIII.) turns out to be *Brenthis youngi* Holland, described from Alaska in 1900. This is another new record for British Columbia and was taken at Atlin in 1914.

On page 17 *Œneis norna* var. *taygete* Hub. should be changed to *Œ. taygete* Hub., as the latter is a species quite distinct from *norna* Thun.

Owing to an oversight on the part of those making the "cut" of *Rhachogaster kermodei* Townsend (Plate X., Fig. 1) the name of the artist was omitted. The drawing was made by Mr. C. W. Young, who is attached to the Experimental Farm at Agassiz, and is an excellent piece of work.

PLATE VIII.

GEOMETRIDÆ.

Dysstroma mulleolata Hulst.
Victoria, B.C. (Blackmore).
(New to British Columbia.)

Dysstroma mulleolata form *subumbrata* Swett.
Victoria, B.C. (Blackmore).
(New to science.)

Dysstroma mulleolata form *ochrofuscaria* Swett.
Victoria, B.C. (Blackmore).
(New to science.)

Alcis sulphuraria form *baltearia* Hulst.
Lillooet, B.C. (Anderson).
(New to British Columbia.)

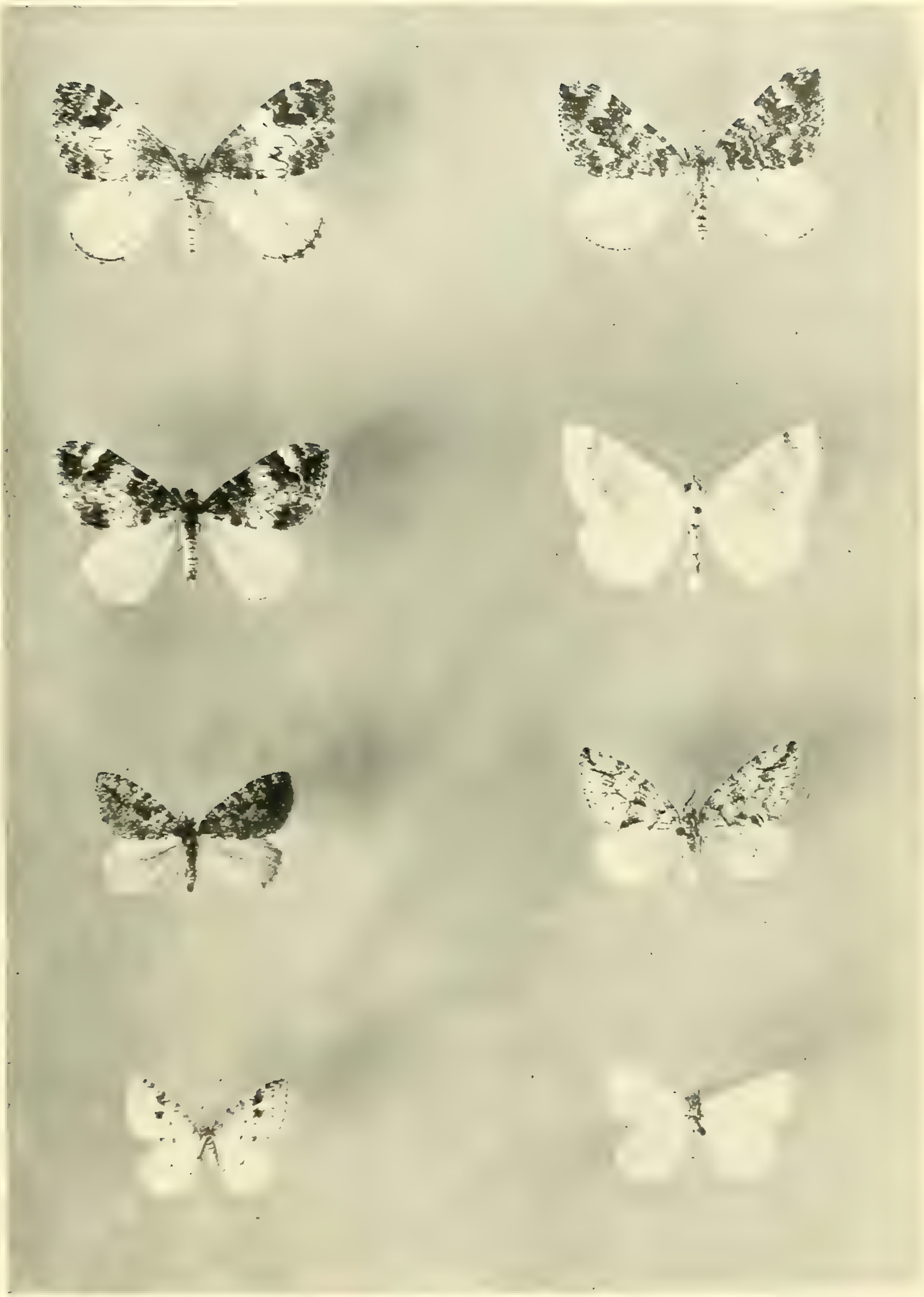
Hydriomena furcata race *periclata* Swett.
Victoria, B.C. (Blackmore).
(New to British Columbia.)

Hydriomena californiata form *niveifascia* Swett.
Victoria, B.C. (Harvey coll.).
(New to science.)

Nomenia obsoleta Swett.
Goldstream, B.C. (Harvey coll.).
(New to science.)

Diastictis andersoni Swett.
Atlin, B.C. (Anderson).
(New to science.)

PLATE VIII.



BOTANICAL SPECIMENS COLLECTED IN THE LILLOOET DISTRICT, 1916.

BY F. KERMODE AND E. M. ANDERSON.

(Identified by J. M. Macoun, Curator of Herbarium, Ottawa.)

POLYPODIACEÆ.

Aspidium spinulosum (O. F. Müller) Sw. Mount McLean.
Cystopteris fragilis (L.) Bernh. Mount McLean.
Polystichum lonchitis (L.) Roth. Mount McLean.
Woodsia scopulina D. C. Eaton. Lillooet.

LYCOPODIACEÆ.

Lycopodium complanatum L. Lillooet.

PINACEÆ.

Juniperus communis L. Mount McLean.
Pinus contorta Douglas. Mount McLean.

SELAGINELLACEÆ.

Selaginella ? Wallacei. Lillooet.

GRAMINEÆ.

Agropyron tenerum Vasey. Lillooet.
Bromus sterilis L. Lillooet.
Poa pratensis L. Lillooet.
Phleum alpinum L. Mount McLean.
Koeleria cristata Pers. var. major. Lillooet.
Calamagrostis purpurasceus R. Rd. Mount McLean.
Setaria viridis (L.) Beauv. Lillooet.

JUNCACEÆ.

Luzula spicata (L.) D.C. Mount McLean.

LILIACEÆ.

Allium stellatum Ker. Lillooet.
Calochortus macrocarpus Dougl. Lillooet.
Clintonia uniflora (Schult.) Kunth. Mount McLean.
Disporum oreganum (S. Wats.) Benth. Seton Lake. (F. K.)
Disporum trachycarpum S. Wats. Lillooet.
Lilium parviflorum (Hook.) Holz. Seton Lake. (F.K.)
Smilacina racemosa (L.) Desf. Seton Lake. (F. K.)
Veratrum viride Ait. Mount McLean.
Zygadenus venenosus S. Wats. Mount McLean.

ORCHIDACEÆ.

Calypso bulbosa (L.) Oakes. Lillooet.
Crypripedium montanum Dougl. Mount McLean.
Corallorrhiza multiflora Nutt. (*maculata* Raf.)
Habenaria leucostachys. Mount McLean.

SALICACEÆ.

Populus tremuloides Michx. Lillooet.
Populus trichocarpa T. & G. Lillooet.
Salix sp. Mount McLean.
Salix Bebbiana Sargent. Lillooet.
Salix Scouleriana. Lillooet.

BETULACEÆ.

Betula alba var. *papyrifera* (Marsh) Spach. Lillooet.

SANTALACEÆ.

Comandra pallida A. D.C. Seton Lake. (F. K.)

POLYGONACEÆ.

Eriogonum subalpinum Greene. Mount McLean.
Oxyria digyna (L.) Hill. Mount McLean.
Polygonum Convolvulus L. Lillooet.
Rumex Acetosella L. Lillooet.

CHENOPODIACEÆ.

Chenopodium sp. Lillooet.
Chenopodium album. Lillooet.

AMARANTHACEÆ.

Amaranthus retroflexus L. Lillooet.

CARYOPHYLLACEÆ.

Arenaria capillaris var. *nardifolia* (Ledeb.) Regel. Mount McLean.
Arenaria sajanensis Willd. Mount McLean.
Cerastium arvense L. var. A. Lillooet.
Cerastium arvense L. var. B. Lillooet.
Cerastium Behringianum C. & S. Mount McLean.
Silene acaulis L. Mount McLean.
Silene Menziesii Hook. Mount McLean.

PORTULACACEÆ.

Claytonia perfoliata Donn. Seton Lake. (F. K.)
Claytonia lanceolata Pursh. Mount McLean.

RANUNCULACEÆ.

Anemone multifida Poir. Seton Lake. (F.K.)
Anemone occidentalis S. Wats. Mount McLean.
Anemone parviflora D.C. Mount McLean.
Aquilegia formosa Fisch. Seton Lake. (F. K.)
Clematis ligusticifolia Nutt. Lillooet.
Delphinium bicolor Nutt. Seton Lake. (F. K.)
Ranunculus glaberrimus Hook. Lillooet.
Ranunculus Eschscholtzii Schlecht. Mount McLean.
Trollius laxus Salisb. Mount McLean.

BERBERIDACEÆ.

Berberis aquifolium Pursh. Lillooet.

FUMARIACEÆ.

Corydalis aurea Willd. Seton Lake. (F. K.)

CRUCIFERÆ.

Arabis sp. (? addition to flora of British Columbia). Lillooet.
Arabis canescens T. & G. Lillooet.
Arabis Drummondii Gray. Mount McLean.
Arabis hirsuta (L.) Scop. Mount McLean.

Capsella Bursa-pastoris (L.) Medic. Lillooet.
Draba alpina L. and var. *glacialis* Dickie. Mount McLean.
Draba aurea Vahl. Mount McLean.
Draba nemorosa L. Lillooet.
Draba nivalis Lilj. (fruit wanting; identification not positive). Mount McLean.
Erysimum parviflorum Nutt. Lillooet.
Lepidium apetalum Willd. Lillooet.
Radicula nasturtium aquaticum (L.) Britton. Seton Lake.
Sisymbrium incisum Engelm. Lillooet.

CRASSULACEÆ.

Sedum divergens S. Wats. Mount McLean.
Sedum stenopetalum Pursh. Seton Lake. (F. K.)

SAXIFRAGACEÆ.

Heuchera cylindrica Dougl. Lillooet.
Mitella trifida Graham. Mount McLean.
Philadelphus Lewisii Pursh. Lillooet.
Ribes irriguum Dougl. Lillooet.
Saxifraga bronchialis L. Mount McLean.
Saxifraga cæspitosa L. Mount McLean.
Saxifraga occidentalis S. Wats. Mount McLean.
Saxifraga nivalis L. Lillooet.
Saxifraga oppositifolia L. Mount McLean.
Tellima parviflora Hook. Lillooet.
Tiarella unifoliata Hook. Mount McLean.

ROSACEÆ.

Amelanchier florida Lindl. Lillooet.
Amelanchier Cusickii Fern. Lillooet.
Cratægus brevispina (Dougl.) Heller. Lillooet.
Dryas octopetala L. Mount McLean.
Fragaria cuneifolia Nutt. Mount McLean.
Fragaria glauca (S. Wats.) Ryal. Lillooet.
Geum triflorum Pursh. Seton Lake. (F. K.)
Potentilla fruticosa L. Mount McLean.
Potentilla oregana Nutt. Lillooet.
Potentilla glandulosa (Lindl.) Rydb. Lillooet.
Potentilla glaucophylla Lehn. Mount McLean.
Potentilla monspeliensis L. Lillooet.
Potentilla nivea L. Mount McLean.
Potentilla rivalis Nutt. Mount McLean.
Prunus demissa (Nutt.) Dietr. Lillooet.
Rosa pisocarpa Gray. Lillooet.
Rosa sp. Lillooet.
Rubus parviflorus Nutt. Lillooet.
Rubus leucodermis Dougl. Lillooet.
Spiræa discolor Pursh. Lillooet.
Spiræa lucida Dougl. Seton Lake.

LEGUMINOSÆ.

Astragalus tenellus Pursh. Lillooet. (F. K.)
Hosackia denticulata S. Wats. Lillooet.
Lupinus arcticus S. Wats. Lillooet.
Lupinus Lyallii Gray. Mount McLean.
Vicia angustifolia Reich. Lillooet.
Vicia sativa L. Lillooet.

ANACARDIACEÆ.

Rhus Rydbergii Small. Seton Lake. (F. K.)
Rhus glabra occidentalis Torr. Lillooet.

ACERACEÆ.

Acer Douglasii Hook. Lillooet.

RHAMNACEÆ.

Ceanothus sanguineus Pursh. Lillooet.
Ceanothus velutinus Dougl. Lillooet.

VIOLACEÆ.

Viola adunca Smith. Mount McLean.
Viola canadensis L. Mount McLean.
Viola orbiculata Geyer. Mount McLean.
Viola mistassinica Greene. Lillooet.

LOASACEÆ.

Mentzelia albicaulis Dougl. Lillooet.

ELAEAGNACEÆ.

Elæagnus argentea Pursh. Seton Lake. (F. K.)

ONAGRACEÆ.

Epilobium alpinum L. Mount McLean.
Epilobium angustifolium L. Lillooet.
Epilobium paniculatum Nutt. Lillooet.

ARALIACEÆ.

Aralia nudicaulis L. Seton Lake. (F. K.)

UMBELLIFERÆ.

Heracleum lanatum Michx. Mount McLean.
Lomatium macrocarpum (Nutt.) C. & R. Lillooet.
Lomatium triternatum (Nutt.) C. & R. Lillooet.

CORNACEÆ.

Cornus pubescens Nutt. Lillooet.

ERICACEÆ.

Cassiope Mertensiana Don. Mount McLean.
Kalmia glacua Ait. Lillooet.
Moneses uniflora (L.) Gray. Mount McLean.
Phyllodoce empetriformis (Sm.) D. Don. Mount McLean.
Pyrola secunda L. Mount McLean.
Pyrola chlorantha Hook. Mount McLean.
Rhododendron albiflorum Hook. Mount McLean.
Vaccinium scoparium Leiberg. Mount McLean.

PRIMULACEÆ.

Androsace occidentalis Pursh. Mount McLean.
Dodecatheon vulgare (Hook.) Piper. Lillooet.

GENTIANACEÆ.

Gentiana acuta Michx. Mount McLean.

APOCYNACEÆ.

Apocynum androsæmifolium L. Seton Lake. (F. K.)

POLEMONIACEÆ.

Polemonium humile R. & S. Mount McLean.
Phlox diffusa Benth. Lillooet.
Gilia gracilis Hook. Lillooet.

HYDROPHYLLACEÆ.

Phacelia leucophyhlla Torr. Lillooet.
Phacelia Menziesii (R. Br.) Torr. Lillooet.
Phacelia sericea (Graham) A. Gray. Mount McLean.

BORAGINACEÆ.

Amsinckia lycopsoides Lehm. Lillooet.
Lappula hispida (A. Gray) Greene. Lillooet. (F. K.)
Lappula Redowskii (Hornem.) Greene, var. *occidentalis* (Wats.) Rydb. Lillooet.
Lithospermum angustifolium Michx. Seton Lake. (F. K.)
Lithospermum pilosum Nutt. Seton Lake.
Myosotis alpestris Schmidt. Mount McLean.

LABIATÆ.

Nepeta cataria L. Lillooet.

SCROPHULARIACEÆ.

Castilleja angustifolia Nutt., var *Bradburii* Fernald. Lillooet.
Castilleja miniata Dougl. Seton Lake. (F. K.)
Castilleja Suksdorfii Gray. Mount McLean.
Collinsia grandiflora var. *pusilla* Gray. Lillooet.
Pentstemon diffusus Dougl. Mount McLean.
Pentstemon procerus Dougl. Mount McLean.
Pentstemon Scouleri Dougl. Mount McLean.
Pedicularis bracteosa Benth. Mount McLean.
Pedicularis Langsdorffii. Mount McLean.
Veronica alpina L. Mount McLean.

RUBIACEÆ.

Galium aparine L. Lillooet.

PLATAGINACEÆ.

Plantago Purshii R. & S. Lillooet.

CAPRIFOLIACEÆ.

Lonicera ciliosa Poir. Seton Lake. (F. K.)
Symphoricarpos racemosus Michx. Lillooet.

VALERIANACEÆ.

Valeriana sitchensis Bong. Mount McLean.

COMPOSITÆ.

Achillea Millefolium L. Seton Lake. (F.K.)
Agoseris glauca (Pursh.) Steud. Mount McLean.
Agoseris aurantiaca (Hook.) Greene. Mount McLean.
Antennaria Howellii Greene. Lillooet.
Antennaria rosea Greene. Mount McLean.
Antennaria pulvinata Greene. Mount McLean.

Antennaria racemosa Greene. Lillooet.
Aplopappus Lyalli Gray. Mount McLean.
Arnica cordifolia Hook. Lillooet.
Arnica latifolia Bong. Mount McLean.
Artemisia frigida Willd. Seton Lake. (F. K.)
Artemisia discolor Dougl. Lillooet.
Artemisia racemosa. Mount McLean.
Balsamorhiza sagittata Nutt. Seton Lake. (F.K.)
Carduus undulatus Nutt. Lillooet.
Chrysopsis villosa Nutt. Lillooet.
Crepis intermedia Gray. Seton Lake. (F. K.)
Erigeron callianthemus Greene. Mount McLean.
Erigeron compositus Pursh. Mount McLean.
Erigeron fitifolius. Lillooet.
Erigeron speciosus DC. Lillooet.
Gaillardia aristata Pursh. Lillooet.
Hieracium albiflorum Hook. Lillooet.
Solidago corymbosa Nutt. Mount McLean.
Senecio exaltatus Nutt. Mount McLean.
Senecio Fremontii T. & G. Mount McLean.

PLANTS COLLECTED IN HENDERSON LAKE DISTRICT, 1916.

BY W. A. NEWCOMBE.

POLYPODIACEÆ.

Phegopteris polypodioides Fee.

PINACEÆ.

Juniperus scopulorum Sarg.

LILIACEÆ.

Tofieldia intermedia Rydb.
Erythronium revolutum Smith.
Fritillaria lanceolata Pursh.
Disporum oreganum (Wats.) B. & H.

ORCHIDACEÆ.

Habenaria stricta Lindl.

RANUNCULACEÆ.

Ranunculus Bongardi Greene.
Trautvetteria grandis Nutt.
Anemone Lyallii Britt.
Coptis asplenifolia Salisb.
Aquilegia formosa Fischer.

CRUCIFERÆ.

Arabis sp.

SAXIFRAGACEÆ.

Boykinia occidentalis T. & G.
Tiarella trifoliata L.
Tellima grandiflora Dougl.
Tolmiea Menziesii (Pursh) T. & G.

ROSACEÆ.

Pyrus sitchensis (Roem.) Piper.
Sanguisorba latifolia (Hook.) Coville.
Geum macrophyllum Willd.
Rosa sp.

HYPERICACEÆ.

Hypericum Scouleri Hook.

VIOLACEÆ.

Viola sp.

ONAGRACEÆ.

Epilobium sp.

UMBELLIFERÆ.

Lomatium Martindalei var. *angustatum* C. & R.

CORNACEÆ.

Cornus canadensis L.

ERICACEÆ.

Menziesia ferruginea Smith.

GENTIANACEÆ.

Gentiana sceptrum Griseb. Uchucklesit Harbour.
Menyanthes crista-galli Menz.

POLEMONIACEÆ.

Phlox diffusa Dougl.

HYDROPHYLLACEÆ.

Romanzoffia sitchensis Bong.

SCROPHULARIACEÆ.

Pentstemon Menziesii Hook.
Pentstemon diffusus Dougl.
Castilleja miniata Dougl.
Mimulus Lewisii Pursh.

RUBIACEÆ.

Galium cymosum Wiegand.

VALERIANACEÆ.

Valeriana sitchensis Bong., var. *Scouleri* (Rydb.) Piper.

COMPOSITÆ.

Erigeron sp.
Erigeron sp.
Eriophyllum lanatum (Pursh) Forbes.
Achillea Millefolium L.
Petasites speciosa (Nutt.) Piper.
Arnica sp.
Luina hypoleuca Benth.
Nabalus alatus Hook.

PLANTS COLLECTED IN CRANBROOK DISTRICT.

BY C. B. GARRETT.

(Identified by J. M. Macoun, C.M.G., Curator of Herbarium, Geological Survey, Ottawa.)

POLYPODIACEÆ.

Phegopteris Dryopteris (L.) Fée. St. Mary's Lake.
Pteris aquilina L., var. *lanuginosa* Bong. St. Mary's Lake.
Cryptogramma acrostichoides R. Br. St. Mary's Lake.
Asplenium cyclosorum Rupr. St. Mary's Lake.
Woodsia scopulina D. C. Eaton. Whitefoot Creek.

CYPERACEÆ.

Carex Richardsonii R. Br. Cranbrook.
Carex tenella Schk. Cranbrook.

JUNCACEÆ.

Luzula glabrata Desv. Whitefoot Creek.

LILIACEÆ.

Zygadenus chloranthus Rich. Cranbrook.
Zygadenus venenosus Wats. Cranbrook.
Allium cernuum Roth. Cranbrook.
Lilium parviflorum (Hook.) Holtz. St. Mary's Lake and Whitefoot Creek.
Fritillaria pudica (Pursh) Spreng. Cranbrook.
Erythronium grandiflorum Pursh, var. *parviflorum* Wats. St. Mary's Lake.
Calochortus elegans Pursh. St. Mary's Lake.
Calochortus macrocarpus Dougl. Cranbrook.
Clintonia uniflora Kunth. St. Mary's Lake.
Smilacina stellata (L.) Desf. Cranbrook.
Disporum trachycarpum B. & H. St. Mary's Lake.
Smilacina amplexicaulis Nutt. St. Mary's Lake.

IRIDACEÆ.

Sisyrinchium angustifolium Miller. Cranbrook.

ORCHIDACEÆ.

Habenaria elegans Boland. St. Mary's Lake.
Habenaria dilatata Hook. St. Mary's Lake.
Spiranthes Romanzoffiana Cham. Cranbrook.
Calypso bulbosa (L.) Oakes. Whitefoot Creek.

BETULACEÆ.

Alnus tenuifolia Nutt. St. Mary's Lake.

SANTALACEÆ.

Comandra pallida A. DC. Cranbrook.

POLYGONACEÆ.

Eriogonum umbellatum Torr. St. Mary's Lake.
Polygonum amphibium L. Cranbrook.

CARYOPHYLLACEÆ.

Arenaria lateriflora L. Cranbrook.
Arenaria serpyllifolia L. Cranbrook.
Stellaria graminea L. St. Mary's Lake.
Stellaria longifolia Muhl. Cranbrook.
Cerastium arvense L. Cranbrook.
Cerastium viscosum L. St. Mary's Lake.
Silene Menziesii Hook. Cranbrook.

PORTULACEÆ.

Claytonia lanceolata Pursh. Whitefoot Creek.
Lewisia rediviva Pursh. Cranbrook.

RANUNCULACEÆ.

Ranunculus Flammula L., var. *reptans* (L.) Meyer. Cranbrook.
Ranunculus glaberrimus Hook. Cranbrook.
Ranunculus Macounii Britt. Glabrate. St. Mary's Lake.
Ranunculus Eschscholtzii Schlecht. St. Mary's Lake.
Anemone patens L., var. *Wolfgangiana* (Bess.) Koch. Cranbrook.
Anemone multifida Poir. Cranbrook.
Anemone occidentalis Freyn. St. Mary's Lake.
Clematis columbiana Hornem. Cranbrook.
Trollius laxus Salisb. St. Mary's Lake.

Aquilegia formosa Fisch., var. *flavescens* (Wats.) Frye & Rigg. St. Mary's Lake.
Delphinium columbianum Greene. Cranbrook.
Actaea arguta Nutt. St. Mary's Lake.

BERBERIDACEÆ.

Berberis aquifolium Pursh. Cranbrook.

FUMARIACEÆ.

Corydalis aurea Willd. St. Mary's Lake.

CRUCIFERÆ.

Alyssum calycinum L. Cranbrook.
Lesquerella Douglasii Wats. St. Mary's Lake.
Thlaspi arvense L. (introduced). Cranbrook.
Capsella Bursa-pastoris (L.) Medic. Cranbrook.
Sisymbrium incisum Engelm. Cranbrook.
Sisymbrium incisum Engelm., var. *Hartwegianum* (Fourn) Wats. Cranbrook.
Erysimum asperum DC. Cranbrook.
Erysimum parviflorum Nutt. Cranbrook.
Cardamine pennsylvanica Muhl. St. Mary's Lake.
Arabis hirsuta (L.) Scop. Whitefoot Creek.

CRASSULACEÆ.

Sedum stenopetalum Prush. St. Mary's Lake.

SAXIFRAGACEÆ.

Saxifraga occidentalis Wats. Cranbrook.
Saxifraga bronchialis L. St. Mary's Lake.
Mitella pentandra Hook. St. Mary's Lake.
Mitella trifida Graham. St. Mary's Lake.
Heuchera glabella T. & G. Cranbrook.
Tellima tenella (Nutt.) Walp. Cranbrook.
Ribes viscosissimum Pursh. Whitefoot Creek.

ROSACEÆ.

Spiræa lucida Dougl. St. Mary's Lake.
Pyrus sitchensis (Roem.) Piper. St. Mary's Lake.
Fragaria platypetala Rydb. Cranbrook.
Potentilla monspeliensis L. St. Mary's Lake.
Potentilla fruticosa L. Cranbrook.
Potentilla anserina L. Cranbrook.
Geum strictum Ait. Cranbrook.
Rubus pedatus Smith. St. Mary's Lake.
Rubus pubescens Raf. Cranbrook.
Rosa sp. Cranbrook.
Prunus demissa Walp. St. Mary's Lake.
Purshia tridentata DC. Mission.

LEGUMINOSÆ.

Lupinus argenteus Pursh. Cranbrook.
Trifolium repens L. St. Mary's Lake.
Trifolium hybridum L. (introduced). St. Mary's Lake.
Astragalus campestris Gray. Cranbrook.
Astragalus spicatus Nutt. Cranbrook.
Oxytropis monticola Gray. Cranbrook.
Vicia americana Muhl. Cranbrook.
Lathyrus ochroleucus Hook. Cranbrook.

GERANIACEÆ.

Geranium viscosissimum F. & M. St. Mary's Lake.

ACERACEÆ.

Acer Douglasii Hook. St. Mary's Lake.

RHAMNACEÆ.

Ceanothus velutinus Dougl. St. Mary's Lake.

HYPERICACEÆ.

Hypericum Scouleri Hook. St. Mary's Lake.

VIOLACEÆ.

Viola sp.? Cranbrook.
Viola adunca Smith, var. Cranbrook.
Viola nephrophylla Greene. Cranbrook.
Viola orbiculata Geyer. Whitefoot Creek.
Viola glabella Nutt. St. Mary's Lake.
Viola canadensis L. St. Mary's Lake.

ONAGRACEÆ.

Œnothera muricata L. Cranbrook.

ARALIACEÆ.

Aralia nudicaulis L. Cranbrook.

UMBELLIFERÆ.

Lomatium triternatum (Nutt.) Cranbrook.
Leptotaenia multifida Nutt. Whitefoot Creek.

CORNACEÆ.

Cornus stolonifera Michx. Cranbrook.
Cornus canadensis L. St. Mary's Lake.

ERICACEÆ.

Moneses uniflora (L.) Gray. Cranbrook.
Pyrola secunda L. St. Mary's Lake.
Pyrola bracteata Hook. St. Mary's Lake.
Phyllodoce empetriformis (Sm.) D. Don. Whitefoot Creek.
Arctostaphylos Uva-ursi (L.) Spreng. Cranbrook.

PRIMULACEÆ.

Dodecatheon pauciflorum Greene (?). Cranbrook.

GENTIANACEÆ.

Gentiana Amarella L., var. *acuta* (Michx.) Herder. Cranbrook.
Gentiana affinis Griesb. Cranbrook.
Menyanthes trifoliata L. Cranbrook.

POLEMONIACEÆ.

Phlox diffusa Benth. Cranbrook.
Gilia linearis (Nutt.) Gray. St. Mary's Lake.

HYDROPHYLLACEÆ.

Phacelia Menziesii Torr. (R. Br.). Cranbrook.
Phacelia leucophylla Torr. St. Mary's Lake.

BORAGINACEÆ.

Lappula occidentalis (Wats.) Rydb. Cranbrook.
Lappula diffusa (Lehm.) Greene. Whitefoot Creek.
Mertensia oblongifolia Don. Mission.
Lithospermum ruderale Dougl. Cranbrook.

LABIATÆ.

Scutellaria galericulata L. Cranbrook.
Prunella vulgaris L. St. Mary's Lake.
Stachys scopulorum Greene. Cranbrook.
Monarda mollis L. Cranbrook.
Mentha canadensis L. Cranbrook.

SCROPHULARIACEÆ.

Collinsia parviflora Lindl. Cranbrook.
Pentstemon sp. Cranbrook.
Pentstemon confertus Dougl. Cranbrook.
Pentstemon scopulorum Piper. St. Mary's Lake.
Pentstemon Scouleri Dougl. Cranbrook.
Mimulus nasutus Greene. St. Mary's Lake.
Veronica americana Schwein. Cranbrook.
Veronica alpina L. St. Mary's Lake.
Veronica humifusa Dickson. St. Mary's Lake.
Castilleja angustifolia Don., var. *Bradburii* Fernald. St. Mary's Lake.
Orthocarpus tenuifolius Benth. St. Mary's Lake.
Pedicularis racemosa Hook. St. Mary's Lake.

LENTIBUARIACEÆ.

Utricularia vulgaris L. Cranbrook.

RUBIACEÆ.

Galium boreale L. Cranbrook.
Galium trifidum L., var. St. Mary's Lake.

CAPRIFOLIACEÆ.

Lonicera involucrata (Richards.) Banks. Cranbrook.
Linnæa borealis L., var. *americana* (Forbes) Rehder. St. Mary's Lake.
Sambucus melanocarpa Gray. St. Mary's Lake.
Sambucus racemosa L. St. Mary's Lake.

CAMPANULACEÆ.

Campanula rotundifolia L. Cranbrook.

COMPOSITÆ.

Chrysopsis villosa (Pursh) Nutt. St. Mary's Lake.
Chrysopsis hirsuta Nutt. Cranbrook.
Solidago decumbens Greene. St. Mary's Lake.
Erigeron acris L. St. Mary's Lake.
Erigeron acris L. (a form of). Cranbrook.
Erigeron corymbosus Nutt. St. Mary's Lake.
Erigeron hispidissimus (Hook.) Piper. Cranbrook.
Erigeron salsuginosus (Rich.) A. Gray. St. Mary's Lake.
Erigeron speciosus DC. St. Mary's Lake.
Aster multiflorus Ait. Cranbrook.
Aster stenomeres Gray. St. Mary's Lake.
Antennaria racemosa Hook. St. Mary's Lake.

Antennaria rosea Greene. Cranbrook.
Antennaria anaphaloides Rydb. St. Mary's Lake.
Antennaria Howellii Greene (small leaves form). Cranbrook.
Anaphalis margaritaceæ (L.) B. & H. Cranbrook.
Balsamorhiza sagittata Nutt. Cranbrook.
Gaillardia aristata Pursh. St. Mary's Lake.
Achillea lanulosa Nutt. Cranbrook.
Chrysanthemum leucanthemum L. Cranbrook.
Arnica gracilis Rydb. St. Mary's Lake.
Arnica cordifolia Hook. St. Mary's Lake.
Arnica fulgens Pursh. Cranbrook.
Arnica grandifolia Greene. Cranbrook.
Senecio triangularis Hook. St. Mary's Lake.
Senecio pseudaureus Rydb. St. Mary's Lake.
Senecio canus Hook. (unusual form with dentate leaves). Cranbrook.
Hieracium albiflorum Hook. Whitefoot Creek.
Hieracium sp. Cranbrook.
Crepis intermedia Gray. St. Mary's Lake.
Crepis gracilis (D. C. Eaton) Rydb. Cranbrook.

PLANTS COLLECTED IN OKANAGAN DISTRICT, 1915.

By J. A. Munro.

POLYPODIACEÆ.

Asplenium Filix-femina (L.) Bernh.
Polypodium vulgare L.

LILIACEÆ.

Zygadenus venenosus S. Watts.
Allium cernuum Roth.
Lilium parviflorum (Hook.) Holz.
Fritillaria lanceolata Pursh.
Fritillaria pudica (Pursh) Spreng.
Calochortus macrocarpus Dougl.
Clintonia uniflora Kunth.
Smilacina stellata (L.) Desf.
Smilacina sessilifolia Nutt.

ORCHIDACEÆ.

Cypripedium montanum Dougl.
Cypripedium parviflorum Salisb.
Habenaria dilatata (Pursh) Gray.
Habenaria unalaschensis (Spreng.) Wats.
Habenaria obtusata (Pursh) Richards.
Habenaria elegans Lindl.
Epipactis decipiens (Hook.) Ames.
Listera convallarioides Torr.
Corallorrhiza multiflora Nutt.
Calypso bulbosa (L.) Oakes.

SANTALACEÆ.

Comandra pallida A. DC.

POLYGONACEÆ.

Polygonum acre H. B. K., var. *leptostachyum* Meisn.
Polygonum lapathifolium L.
Eriogonum angustifolium Nutt.

CARYOPHYLLACEÆ.

Agrostemma Githago L. (introduced).

RANUNCULACEÆ.

Clematis columbiana (Nutt.) T. & G.
Ranunculus glaberrimus Hook.
Delphinium sp.
Actaea arguta Nutt.

SAXIFRAGACEÆ.

Tellima parviflora Hook.

ROSACEÆ.

Spiræa lucida Dougl.
Spiræa discolor Maxim.
Potentilla anserina L.
Potentilla monspeliensis L.
Geum triflorum Pursh.

LEGUMINOSÆ.

Astralagus campestris Gray.
Vicia americana Muhl.
Lathyrus ochroleucus Hook.

GERANIACEÆ.

Erodium cicutarium (L.) L'Herit.

MALVACEÆ.

Sphæralcea acerifolia Nutt.

HYPERICACEÆ.

Hypericum Scouleri Hook.

VIOLACEÆ.

Viola adunca Smith.
Viola canadensis L.

ONAGRACEÆ.

Epilobium angustifolium L.
Epilobium adenocaulon Haussk.

ERICACEÆ.

Arctostaphylos Uva-ursi L.

PRIMULACEÆ.

Dodecatheon Meadia L., var. *pauciflorum* Durand.
Steironema ciliatum (L.) Raf.

HYDROPHYLLACEÆ.

Phacelia Menziesii (R. Br.) Torr.

SCROPHULARIACEÆ

Pentstemon Scouleri Lindl.

OROBANCHACEÆ.

Orobanche fasciculata Nutt.
Orobanche uniflora L.

PLANTAGINACEÆ.

Plantago Purshii R. & S.

RUBIACEÆ.

Galium boreale L.

CAPRIFOLIACEÆ.

Linnæa borealis L., var. *americana* Forbes.
Lonicera involucrata (Richards) Banks.

VALERIANACEÆ.

Valerianella macrocera T. & G.

CAMPANULACEÆ.

Specularia perfoliata (L.) A. DC.

COMPOSITÆ.

Chrysopsis hispida (Hook.) Nutt.
Chrysopsis villosa (Pursh) Nutt.
Solidago ellngata Nutt.
Erigeron macranthus Nutt.
Erigeron corymbosus Nutt.
Erigeron philadelphicus L.
Antennaria rosea Greene.
Gaillardia aristata Pursh.
Arnica cordifolia Hook.
Agoseris aurantiaca Hook.
Hieracium columbianum Rydb.
Sonchus arvensis L.
Crepis intermedia A. Gray.

PLANTS COLLECTED IN CHILCOTIN DISTRICT, 1915.

By W. A. Newcombe.

(Identified by J. M. Macoun, C.M.G., Curator of Herbarium, Geological Survey, Ottawa.)

POLYPODIACEÆ.

Cheilanthes Feei Moore.
Cheilanthes gracillima D. C. Eaton.
Pellæa occidentalis (Nels.) Rydb. Alexis Creek.
Cryptogramma acrostichoides R. Br. Hell's Gate, Fraser River.
Crystopteris fragilis (L.) Bernh.
Woodsia obtusa (Spreng.) Torr.
Woodsia oregana D. C. Eaton. Hell's Gate, Fraser River.
Woodsia scopulina D. C. Eaton.

OPHIOGLOSSACEÆ.

Botrychium Lunaria L.

PINACEÆ.

Juniperus scopulorum Sarg.
Juniperus communis L., var. *sibirica* (Burgsd.) Rydb.

NAIADACEÆ.

Triglochin palustris L.

GRAMINEÆ.

Phragmites communis Trin.

CYPERACEÆ.

Eleocharis palustris (L.) R. & G.
Carex sp.?
Carex vesicaria L.

LILIACEÆ.

Zygadenus venenosus S. Wats.
Allium cernuum Roth.
Lilium parviflorum (Hook.) Holtz.
Fritillaria pudica (Ph.) Spreng.
Smilacina sessilifolia Nutt.

IRIDACEÆ.

Sisyrinchium angustifolium Miller.

ORCHIDACEÆ.

Cypripedium parviflorum Salisb.
Orchis rotundifolia Banks.
Habenaria obtusata (Ph.) Richards.
Habenaria dilatata (Ph.) Gray.

SALICACEÆ.

Salix ? myrtilloides L.
Salix melanopsis Nutt.
Salix sp.
Populus tremuloides Michx.
Populus trichocarpa T. & G.

BETULACEÆ.

Betula glandulosa Michx.
Alnus sp.

SANTALACEÆ.

Comandra pallida A. DC.

POLYGONACEÆ.

Eriogonum heracloides Nutt.

CHENOPODIACEÆ.

Chenopodium capitatum (L.) Ascher.

CARYOPHYLLACEÆ.

Stellaria longipes Goldie.
Cerastium arvense L.
Cerastium ? nutans Raf.
Silene Menziesii Hook.

RANUNCULACEÆ.

Ranunculus cymbalaria Pursh.
Ranunculus delphinifolius Torr.
Ranunculus sceleratus L.
Ranunculus Macounii Britt.
Ranunculus pedatifidus Smith.
Ranunculus abortivus L.
Ranunculus glaberrimus Hook.
Thalictrum occidentale A. Gray.
Anemone multifida Poir.
Aquilegia brevistyla Hook.
Delphinium bicolor Nutt.
Actæa arguta Torr.

FUMARIACEÆ.

Corydalis aurea Willd.

CURCIFERÆ.

Draba nemorosa L., var. *leiocarpa* Lindbl.
Sisymbrium incisum Engelm.
Erysimum cheiranthoides L.
Cardamine probably *pennsylvanica* Muhl.
Arabis brachycarpa (T. & G.) Britt.
Arabis lyrata L., var. *occidentalis* S. Wats.
Arabis hirsuta Scop.

CRASSULACEÆ.

Sedum stenopetalum Pursh.

SAXIFRAGACEÆ.

Heuchera columbiana Rydb.
Chrysosplenium alternifolium L.

Parnassia palustris L.
Ribes hudsonianum Richardson.
Ribes oxyacanthoides L.

ROSACEÆ.

Spiræa lucida Dougl.
Amelanchier florida Lindl.
Fragaria chiloensis (L.) Duch.
Potentilla gracilis Dougl.
Potentilla glandulosa Lindl.
Potentilla anserina L.
Potentilla anserina L., var. *concolor* Ser.
Potentilla pennsylvanica L.
Potentilla strigosa Pursh.
Geum rivale L.
Geum strictum Ait.
Geum triflorum Pursh.
Rubus strigosus Michx.
Rubus triflorus Richards.
Rubus arcticus L.
Rosa acicularis Lindl.
Prunus demissa Nutt.

LEGUMINOSÆ.

Astragalus alpinus L.
Astragalus campestris Gray.
Hedysarum boreale Nutt.
Vicia americana Muhl.
Lathyrus ochroleucus Hook.
Astragalus hypoglottis L.

LINACEÆ.

Linum Lewisii Pursh.

GERANIACEÆ.

Geranium erianthum DC.

VIOLACEÆ.

Viola adunca Smith.
Viola blanda Willd.
Viola canadensis L.
Viola cognata Greene.

ELÆAGNACEÆ.

Elæagnus argentea Pursh.
Shepherdia canadensis (L.) Nutt.

ONAGRACEÆ.

Epilobium angustifolium L.

UMBELLIFERÆ.

Cicuta ? vagans Greene.
Heracleum lanatum Michx.

CORNACEÆ.

Cornus stolonifera Michx.

ERICACEÆ.

Pyrola uliginosa Torr.
Arctostaphylos Uva-ursi (L.) Spreng.

PRIMULACEÆ.

Androsace saptentrionalis L.
Lysimachia thyrsiflora L.

APOCYNACEÆ.

Apocynum androsæmifolium L.

POLEMONIACEÆ.

Gilia linearis (Nutt.) Gray.
Polemonium elegans Greene.

HYDROPHYLLACEÆ.

Phacelia Menziesii (R. Br.) Torr.

BORAGINACEÆ.

Lappula Redowskii (Hornem.) Greene, var. *occidentalis* (Wats.) Rydb.
Lithospermum angustifolium Michx.
Lithospermum ruderale Dougl.

LABIATÆ.

Mentha arvensis L.

SCROPHULARIACEÆ.

Pentstemon Scouleri Lindl.
Pentstemon procerus Dougl.
Mimulus Langsdorfii Donn.
Mimulus peduncularis Dougl.
Veronica americana Schwein.
Castilleja angustifolia (Nutt.) G. Don.
Castilleja miniata Dougl.
Orthocarpus luteus Nutt.

OROBANCHACEÆ.

Orobanche fasciculata Nutt.

RUBIACEÆ.

Galium boreale L.

CAPRIFOLIACEÆ.

Lonicera involucrata (Richard.) Banks.
Symphoricarpos racemosus Michx.
Linnæa borealis L.
Viburnum pauciflorum Pylaie.

VALERIANACEÆ.

Valeriana sitchensis Bong.

COMPOSITÆ.

Chrysopsis hispida (Hook.) Nutt.
Aster multiflorus Ait.
Erigeron flagellaris A. Gray.
Erigeron philadelphicus L.
Erigeron speciosus DC.
Erigeron compositus Pursh.
Antennaria lanata (Hook.) Greene.
Antennaria rosea Greene.
Antennaria parvifolia Nutt.
Balsamorhiza sagittata (Pursh) Nutt.
Gaillardia aristata Pursh.
Achillea Millefolium L.
Artemisia discolor Dougl.
Petasites speciosa (Nutt.) Piper.
Arnica alpina (L.) Ol. & Lad.
Arnica cordifolia Hook.

Senecio canus Hook.
Senecio cymbalarioides Nutt.
Senecio mutabilis Greene.
Cichorium Intybus L.
Agoseris glauca (Pursh) Steud.
Crepis occidentalis Nutt.

PALÆONTOLOGY.

A noteworthy addition to the small collection of Tertiary fossils in the Provincial Museum was acquired in October, 1916. This consists of a fossil tooth of the rare *Desmostylus*, an extinct race of the mammalian group of sirenians, to which the living dugong and the recently extinct Steller's sea-cow belong.

The tooth referred to was found by Miss M. Egerton, of Victoria, in the fossiliferous sandstone cliff near the mouth of Coal Creek, Sooke, in the summer of 1916, and was forwarded by R. E. Gosnell, at the suggestion of the Director, to Lawrence M. Lambe, Dominion Vertebrate Palæontologist, Ottawa, for determination. Mr. Lambe's reply included the following statement:—

"The tooth from Otter Point, in the Sooke District, Vancouver Island, belongs to the sirenian species, *Desmostylus hesperus* Marsh, of Pliocene (? Miocene) age. This tooth is of particular interest as it is the first one of this kind found to our certain knowledge in Canada. Last year Dr. Newcombe, of Victoria, B.C., presented to this Department a large, perfect, unworn tooth which he obtained from a curio-dealer, and was supposed to be from Alaska. Miss Egerton's specimen was happily secured *in situ*, and possibly a further search at the locality may reveal other remains of the species. It appears to be the first right upper molar; Dr. Newcombe's being the second left molar. It is probable that the beds from which the specimen comes are of Miocene age, but the genus may have ranged up into the Pliocene. Remains of *Desmostylus* have been found in Japan, California, and Oregon. The genus is closely related to the existing *Manatus* of Florida and the recently extinct *Rhytina* (Steller's sea-cow) of the North Pacific. The specimen has been broken off at the top of the roots, which have remained in the rock, and may possibly still be recovered to make it complete if a visit is made to the locality and care is exercised in their removal."

As several finds of *Desmostylus* had been reported from California, from which State the first specimen had been described, it was thought advisable to write to the well-known geologists, Dr. Merriam and Dr. Ralph Arnold, for further information. The former had already taken much interest in the Sooke formations and had published preliminary descriptions of fossils found in them in 1897 and 1899. In the years 1906 and 1911 he had also published notes on the genus *Desmostylus*, with special reference to the remains found on the Pacific Coasts of America and Japan. Dr. Arnold, it was known, had devoted a great deal of time to the Tertiary faunas of the Pacific Coast, and had in view a publication which might continue the work so well commenced by his report on the Marine Pliocene and Pleistocene of San Pedro, California. Dr. Arnold had also sent field parties to our Coast, who had made large collections of fossils at and near Sooke.

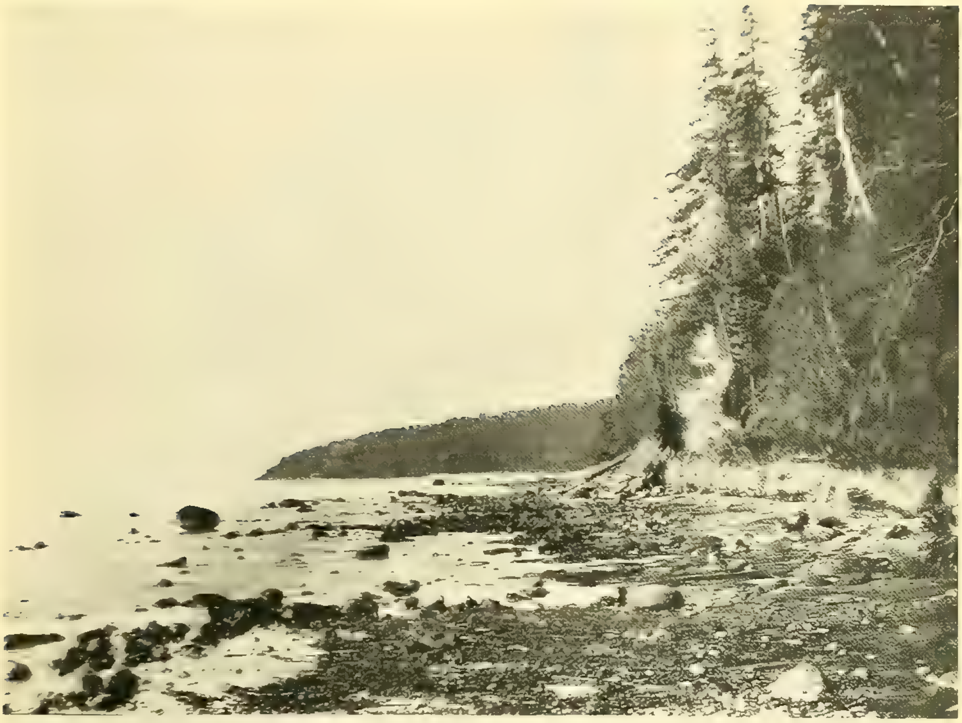
Permission was readily given to make use of such conclusions as had been arrived at by the above geologists with regard to the age of the formation from which our *Desmostylus* tooth came.

Quoting from a letter received from Mr. B. L. Clark, of the University of California, who is now examining and describing the Tertiary fossils of this Coast in collaboration with Drs. Merriam and Arnold, the following statements are of interest:—

"After studying the fauna from the Sooke beds and that from the Carmanah Point beds, my conclusion is that they belong to the same period of deposition and, very probably, to the same faunal horizon. A number of species common to the beds of the two localities are distinctive forms, such as, I believe, may be taken as good horizon markers. Some of these species are *Agasoma acuminatum, Bullia buccinoides, Eudolium petrosu, Molopophorus Newcombei, Macrocallista vancouverensis*, and *Chione ? n. sp.*

This fauna, from both localities, apparently belongs to the same horizon as that found in the Restoration Point beds near Seattle. These were referred to the Seattle formation by Arnold and Hannibal, and to his Blakely horizon by Weaver, the fauna of which he designates as that of the *Acila gettysburgensis* zone.

PLATE IX.



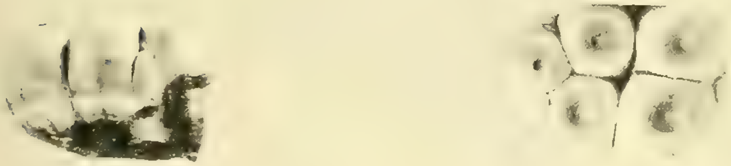
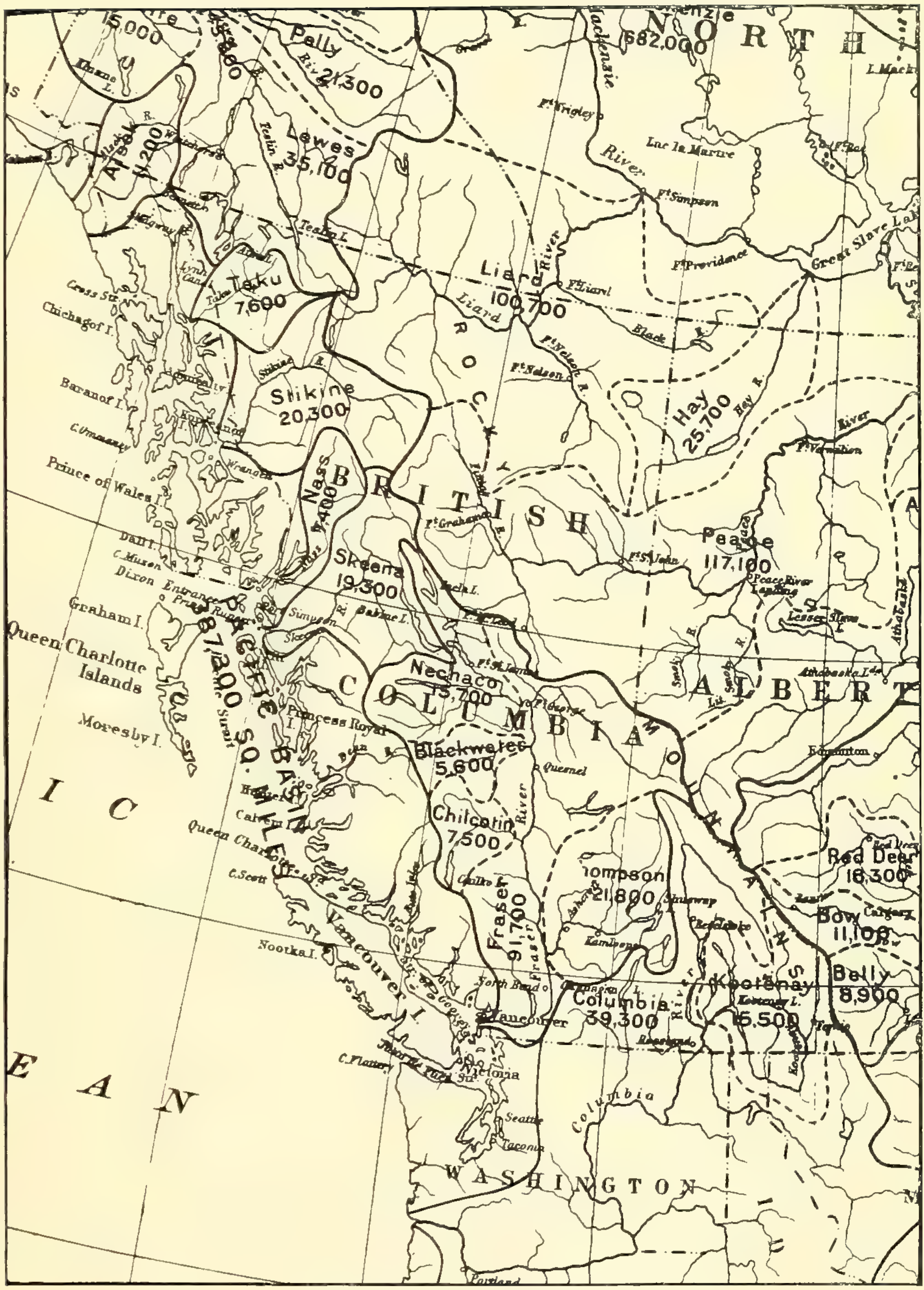


Fig. 1. View of fossiliferous sandstone cliff near mouth of Coal Creek, Sooke, Vancouver Island. Photo by C. F. Newcombe, M.D.

Figs. 2 and 3 Tooth of ***Desmostylus hesperus*** Marsh. Found in the sandstone cliffs near mouth of Coal Creek, Sooke, B.C.

PLATE X.



Drainage-basins of British Columbia.
Enlarged from Atlas of Canada, Department of the Interior.

"The question as to the exact position of the *Acila gettysburgensis* zone is debatable. Professor Weaver places it as the uppermost faunal zone of the Oligocene.

"My study of the Oligocene fauna of middle California, together with that of Oregon and Washington, appears to me to show that the faunas of the different horizons of the Oligocene of Oregon and Washington, as recognized by Arnold and Hannibal, and by Weaver, are very closely related. Much more work, however, must be done before the sequence and relative importance of the different faunal zones can be established for a certainty."

Plate IX., Fig. 1. View of fossiliferous sandstone cliff near the mouth of Coal Creek, Sooke. The low Tertiary cliff is covered by heavy glacial deposits with heavy growth of timber. Erosion is going on with great rapidity, leaving ice-worn boulders on nearly level rocky beach, which extends far out to sea at low water.

Plate IX., Figs. II. and III. Tooth of *Desmostylus*, believed to be of the species *hesperus* of Marsh. The tooth is formed of several cylindrical pillars, each consisting of a thick layer of enamel enclosing a small body of dentine. The grinding surface shows a circular depression at the end of each of the principal pillars, the lip of which is formed by enamel, and the central pit is excavated by wear into the softer dentine.

Until this tooth was found the *Desmostylus* was only known to occur in America in Oregon and California; outside of America it has also been found in Japan.

A. Side view of tooth showing pillars.

B. Grinding surface, showing circular pits. Height, 22 mm.; length, 35 mm.; width, 24 mm.

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Smithsonian Institution, Washington, D.C.

1-566. Ext. Proc. No. 2117, Vol. 49—A New Crustacean (Diaptomus). C. Dwight Marsh.

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2-279. (Bureau of Biological Survey)—Service and Regulatory Announcements: Bird Protection.
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UNIVERSITY OF CALIFORNIA.

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3-172. Museum Bulletin No. 22, Geol. Series 31—The Age of Killarney Granite. W. H. Collins.
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42-19. Vol. XVI., No. 3—University Studies.

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16-162. Bull. 286—Reports, County Experiment Farms, 1914.

16-163. Bull. 287—Ohio Weather for 1914.
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58-7. Zoological, Vol. II., Nos. 3, 4—Birds of Para, Brazil. Fauna of 4 square feet of Jungle Debris. C. W. Beebe.
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55-322. Bulletin of the New York Botanical Garden, 1915.
55-323. Frederick Ward Putnam, 1839-1915. An Appreciation by Edward S. Moore.
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55-327. Commonwealth of Massachusetts—Annual Report State Ornithologist, 1915. E. Howe Forbush.
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55-329. Illinois State Laboratory, Vol. X.—Contents and Index.
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55-331. Illinois State Laboratory, Vol. XI., Art. III.—Veterbrate Life of Prairie and Forest Regions near Charleston, Ill. T. L. Hankinson.

55-332. Illinois State Laboratory, Vol. XI., Art. IV.—Add. Records of Chironomidæ for Ill. and other Diptera. Jon. R. Malloch.
55-333. Illinois State Laboratory, Vol. XI., Art. V.—Phyllophaga Harris. Robt. E. Glasgow.
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55-336. Louisiana State Museum. Report of the Board of Curators, 1915.
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55-344. National Museum, Melbourne, No. 1—Carboniferous Fish Fauna. A. S. Woodward.

VICTORIA, B.C.:
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1917.

PROVINCE OF BRITISH COLUMBIA

REPORT

OF THE

PROVINCIAL MUSEUM

OF

NATURAL HISTORY

FOR THE YEAR 1917

243856

THE GOVERNMENT OF
THE PROVINCE OF BRITISH COLUMBIA

PRINTED BY
AUTHORITY OF THE LEGISLATIVE ASSEMBLY.

VICTORIA, B.C.:
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1918.

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1918.

To His Honour Sir Frank Stillman Barnard, K.C.M.G.,
Lieutenant-Governor of the Province of British Columbia.

May it please Your Honour:

The undersigned respectfully submits the Annual Report of the Provincial Museum of Natural History for the year 1917.

J. D. MacLEAN,
Provincial Secretary.

Provincial Secretary's Office, Victoria,
March 7th, 1918.

Provincial Museum of Natural History,
Victoria, B.C., March 7th, 1918.

The Honourable J. D. MacLean, M.D.,
Provincial Secretary, Victoria, B.C.

Sir,—I have the honour, as Director of the Provincial Museum of Natural History, to lay before you the Report for the year ending December 31st, 1917, covering the activities of the Museum.

I have the honour to be,
Sir,
Your obedient servant,

FRANCIS KERMODE,
Director.

PROVINCIAL MUSEUM REPORT

FOR THE YEAR 1917.

Since the last Annual Report of the Provincial Museum it has been found that it was still necessary that the strictest economy must be exercised in the maintenance of public institutions, expending moneys only where it was absolutely necessary, and still keep up to the objects of the "Provincial Museum Act," viz.:—

(*a.*) To secure and preserve specimens illustrating the natural history of the Province:

(*b.*) To collect anthropological material relating to the aboriginal races of the Province:

(*c.*) To obtain information respecting the natural sciences relating particularly to the natural history of the Province, and to increase and diffuse knowledge regarding the same.

Although quite a large number of specimens have been added to the collection during the year, little actual field-work was undertaken, as at the usual time to start field-work it was not possible to secure the desired assistants.

However, Dr. C. F. Newcombe, who has always been only too willing to assist in building up the collections of the Provincial Museum, offered his services voluntarily, and accompanied the Director on a trip to the Bella Coola District in the month of June.

While in Bella Coola special efforts were made to collect the flora of the district, as this was particularly needed in mapping out the distribution of the different species of plants in this Province. Quite a large representative collection was secured and prepared, of which special mention is made in the botanical report. A number of plants were also collected at Ocean Falls while waiting there for a steamer to Victoria.

Advantage was also taken of the information conveyed to the Director by Mr. W. H. Gibson, the missionary at Bella Coola, that he thought it would be possible to secure a number of old ceremonial masks, which had been in possession of the tribe for a great number of years, from an old Indian chief, "Captain Schooner."

Dr. Newcombe and the Director paid several visits to the old reserve to see the old chief, and after using a great deal of diplomacy and secrecy (which is necessary when dealing with Indians in such matters, especially with chiefs), these ceremonial masks were secured with their stories and legends.

In the month of April the Department was fortunate in purchasing from Lieutenant F. C. Swannell, B.C.L.S., of Victoria, a collection of Indian relics from the Northern Interior of the Province, from which locality the Museum had very little material; these specimens belonged to a number of tribes, which, like others, are fast disappearing. Lieutenant Swannell had collected these specimens several years ago while out with survey parties in the northern portions of the Province.

Two very valuable collections of anthropological material were donated to the Museum, one by Mrs. Gertrude A. Croucher, Yale, B.C., in memory of her much respected husband, the late Rev. Charles Croucher. This collection, numbering 158 specimens, was collected by Rev. Mr. Croucher many years ago, and has been much coveted by a number of the museums of America; but the late reverend gentleman was loyal to this Province, and would not allow his collection to go out of British Columbia, and always said that at his death the specimens were to be donated to the Provincial Museum at Victoria, so that they would be accessible to students in the study of the life-history of the aboriginal races of this North-west Coast of America.

The other anthropological collection, numbering eight specimens, was donated by Mrs. Blanche Dewdney, in memory of her late husband, the Honourable Edgar Dewdney, P.C., ex-Lieutenant-Governor of the North-west Territory and ex-Lieutenant-Governor of the Province of British Columbia. In this collection will be found a valuable set of bone gambling-dice, with sticks as counters, used by the Kootenay Indians. Specimens similar to these are seldom seen in any collection of anthropology.

Early in the month of October, Professor John Macoun, F.R.S.C., Naturalist to the Geological Survey of Canada, Ottawa, who now resides at Sidney, B.C., received permission from the Director of the Geological Survey, Mr. R. G. McConnell, to present to the Provincial Museum his fine collection of the Vancouver Island flora, numbering approximately 900 specimens, all named and classified. The Director undertook to transfer these specimens personally from Sidney to Victoria, so that they would be handled with the greatest care. These specimens have now been deposited in the Herbarium under the supervision of Mr. W. R. Carter, and are now available for reference to those who are interested in the study of botany.

It will be seen in the report on botany that special work has been carried out in this particular branch during the past year, with the assistance of several volunteer collectors, who have helped materially to make the Herbarium the most representative collection in the Province.

The exhibition cases of British Columbia butterflies on the second floor of the Museum have been entirely rearranged by Mr. E. H. Blackmore, of this city, in accordance with the new Check-list of the Lepidoptera of Boreal America, issued by Messrs. Barnes and McDunnough, of Decatur, Ill., in February, 1917. This list is recognized as the standard authority by the Victoria Memorial Museum at Ottawa, and also by the majority of the principal museums in the United States.

The nomenclature has undergone radical changes and the sequence of genera is entirely different to that of Dr. Dyar's catalogue of North America Lepidoptera, published in 1902, which has hitherto been followed. The style of labelling has been altered, the names being typewritten in two colours, the generic and specific names in purple and the author's name in red, thus ensuring greater legibility than was formerly the case in the old hand-written labels. The labels are also placed on the supporting pin at the same height as the insect, thereby rendering them more easily readable to the general public. It is hoped to be able to continue this work on the Museum collection of moths during the coming year.

It is very gratifying to note that a number of teachers, both in public and private schools, are bringing their classes to the Museum in connection with their nature-studies, which I am sure has been greatly appreciated by the scholars, and without doubt has been a great benefit to them individually, judging from the manner in which they have gone around the exhibition halls taking notes. The Director or one of the staff is always on hand to give the young folk all the information possible.

The number of visitors that have signed the register in the entrance hall during the year 1917 was 35,672; this does not give the number of visitors by any means, as the school-children are not asked to register their names, neither are a large number of Orientals and others.

The Director has had a number of requests from other museums, societies, and persons who are interested in the several branches of natural sciences for the loan of specimens for comparison, which has always been willingly granted whenever possible.

By permission of the Honourable Provincial Secretary, the annual meeting of the British Columbia Entomological Society was held in the Botanical Room in the Provincial Museum, when a number of very interesting papers were read by members on systematic and economic entomology.

The Honourable Minister of this Department also gave the Director permission to have the meetings of the Natural History Society held in the Museum on evenings when subjects are being discussed on natural-history specimens that are represented in the collections; this arrangement is most satisfactory, as it saves loaning specimens, and I think is of more interest to members and has been greatly appreciated by the society.

The Director wishes to extend grateful thanks to the following persons that have assisted with the identifications in their respective branches of biology:—

Identification of Botanical Specimens.—Professor J. Macoun, Sidney, B.C.; J. M. Macoun, C.M.G., Chief of Biological Department, Ottawa; C. F. Newcombe, M.D., Victoria; and Professor J. K. Henry, University of British Columbia, Vancouver, B.C.

Identifications in Entomology.—Doctors Barnes and McDunnough, Decatur, Ill.; Professor E. M. Walker, University of Toronto, Ont.; L. W. Swett, Lexington, Mass.; R. S. Sherman, Vancouver, B.C.; and E. H. Blackmore, Victoria, B.C.

Thanks are also extended to a number of persons who have donated specimens.

Botanical specimens have been received from the following: Professor J. Macoun, Sidney; W. B. Anderson, Victoria; Dr. C. F. Newcombe, Victoria; W. R. Carter, Alberni; W. A. Newcombe, Victoria; J. R. Anderson, Victoria; and Professor J. K. Henry, Vancouver.

Notes on bird observations have been received from the following: J. E. Kelso, M.D., and W. B. Johnson, Lower Arrow Lakes; A. H. Palmer, New Westminster; J. A. Munro, Okanagan Landing; and others.

BARE ISLAND BIRD SANCTUARY.

(This island is known as Indian Reserve No. 9, Saanich Tribe, and is situated in Haro Strait about twenty miles north-east of Victoria.)

Owing to certain conditions it was not deemed advisable to place a warden on this island during the last nesting season, and it was expected that after this island had been guarded so closely for the two previous seasons, and persons warned to keep away, no person would go there to molest the gulls, guillemots, puffins, and cormorants that make this island their nesting ground.

But in a report that was sent to me by Mr. Leonard S. Higgs, who lives on one of the neighbouring islands, it seems imperative that a guard must be maintained on Bare Island during the nesting season and continued indefinitely. The following is a quotation from his letter:—

"As perhaps you know, I take a deep interest in the few sea-bird breeding-places in the neighbourhood, and especially in that on Bare Island, which I have visited practically every summer for twenty-five years.

"The policy of the Government in placing a warden on Bare Island for a couple of months during the breeding-season was admirable, and was responsible for raising the number of breeding pairs to at least double what it was two or three years ago. But it is a policy which should be continued indefinitely.

"My experience this summer has been as follows: I visited the island early in June, when the nests were just made, and contained either one or two eggs. I counted over 100 eggs in an area perhaps equal to one-thirtieth of the breeding-ground, taking an average of one egg and a half to each nest at that time. When the full hatches should have been laid, the number of eggs available for hatching should have been 6,000. I called again after an interval of ten days, and should have had difficulty in finding 100 eggs upon the entire island, practically every nest being empty. No bird, however prolific, can stand such treatment."

ANTHROPOLOGY.

ACCESSIONS, 1917.

By Purchase from Lieutenant F. C. Swannell (Nos. 2912-2964).

1. Athabascan. From the Northern Interior of British Columbia. This portion of the collection consists of 100 specimens which were acquired by Lieutenant Swannell at the following localities: Lac la Hache, Chestalla Lake, Fraser Lake, Stuart Lake, Stella Lake, and the Babine River country. It consists principally of articles of stone, such as arrow and spear points, knives, chisels, skin-scrapers, hammers, pipes, and a polished mirror. There are also snow-shoes, bone skin-scrapers, adzes, fish-spears, knives with iron blades, and birch-bark baskets.

2. Salishan. From Lillooet seventeen specimens include a two-handed stone pile-driver of the rare type, illustrated in last year's report. There are also a few specimens from the Lower Fraser River, Victoria, and the Bella Coola region belonging to this stock.

Rev. C. Croucher Collection, mostly from Yale, B.C. (Nos. 2979-3137).

2996 to 2999 and 3137. A remarkable set of carved stone dishes. Of these, No. 2996 is of soapstone in a very fine state of preservation. Like Nos. 2998 and 3000, it represents a seated human figure. No. 2997 is of bird form, and 2999 closely resembles a turtle. No. 3137 is a very large, crudely carved object of animal form.

There are also four small figures of human shape, and a knife-handle of horn, boldly carved to represent certain ancestors of its Indian maker.

The rest of the collection includes stone dishes (some of cigar-holder shape), a stone labret, and a great number of stone chisels, hammers, arrow-points, etc.

Collection presented by Mrs. Dewdney on behalf of the late Edgar Dewdney (Nos. 2904 to 2911).

2904. Salish. Medicine-man's head-dress of two paws of grizzly bear with claws.

2905. Gambling set of four long polished bone, marked with diagonal and circular lines. Set of twelve sticks for counting. Kootenay.

2906. Salish. Spindle-whorl of big maple, carved to show two thunder-birds.

2907. Salish. Tension-ring of wood, a carved bird with ring below, used to cause tension while spinning. Lower Fraser.

2908. Salish. Two mat-creasers of maple, used when making rush mats. Lower Fraser.

2909. Salish. Halibut-hook of hemlock wood, U-shaped, bone barb, spruce-root wrapping lanyard of twisted gut. Lower Fraser.

2910. Salish. Stone chisel. Lower Fraser.

2911. Salish. Spoon of mountain-goat horn, the carved handle riveted to bowl; raven below holding inverted man.

Bella Coola Collection.

From Chief Schooner were purchased the following ceremonial objects:—

1. Nos. 2965 to 2973. Masks used at potlatches and dances and representing crests and legends of the chief's clan.

2965. Eagle mask (TsElkt).

2971. Loon Mask (Squsin). This crest was also observed in the graveyard.

2972. Setting-sun mask (Nothokomai). This is now the property of Schooner's son. It is shown at potlatches over a screen at the back of the dance-house, the wearer himself being out of sight.

2973. Eagle mask. This is one of the chief's principal family crests, and is shown at the same time as—

2969. Raven mask (Qoaxmanikwulla).

2966. Killer-whale mask (Suit). A large mask in three parts which represent the head (enq), the dorsal fins (qutleik), and the tail (sliamont). The story relating how this crest came into the chief's family is, in part, as follows:—

In far-distant days Schooner's ancestors lived in a large chief's house in the sky. The first of them of whom there is still any tradition was named Tamaltsen. This man when he danced used two masks, the eagle and the killer-whale. These were obtained by him at an old village named NuskElste, a place half-way up the River TEintz, which runs past Bella Coola. Of this place it is said that at one time the sea rose so high that it filled up all the streams and reached the tops of the mountains to the west of Bella Coola, driving out all the natives from their houses until they could climb no higher. Just in time to save them from extermination a huge killer-whale swam close up to their last place of refuge on the mountain-tops and most of the people were able to climb inside and so were saved. The whale was as large as a big house and here all were cared for until the waters subsided. When land was seen once more the raven flew up and down croaking joyfully that so many people had escaped from drowning.

2967, 2968. Small masks representing two of the people who were saved.

2. Nos. 2974 to 2976. Masks used in the cannibal winter dance. These are all bird masks with long narrow beaks differing slightly in certain details, and all are called Hauhau, the Bella Coola form of the Kwakiutl Hohok. These are only parts of a complete set belonging to the winter dance, but supplement specimens purchased at Bella Coola some years ago. It was then found impossible to obtain from any one owner a perfect series such as belong to several Kwakiutl chiefs. Chief Schooner's consent had to be obtained in every instance, and he also promptly annexed a large part of the purchase-money, without opposition from the seller. It was stated that outlying parts of the set used in the cannibal dance were held by different individuals belonging to the society and were liable to be called for.

Schooner said that his family came into possession of the cannibal dance in early days. One of his ancestors was walking along the beach near Bella Coola when suddenly there appeared rising out of the sea a large chief's house. Some people came to the door and invited him to go inside. Here he saw, sitting at the far end of the house, a chief whose name was Qomoqoya, who was wearing a ceremonial hat of great size. The visitor at once produced a valuable "copper" and presented it to Qomoqoya.

Two of the ancestor's brothers had been made prisoners and taken to this house, but soon after were drowned. For this reason the use of the cannibal masks was explained to him and the right to use them was granted.

PLATE I.

NOCTUIDÆ NEW TO BRITISH COLUMBIA.

Ufeus electra Sm.
Victoria, B.C. (Blackmore).

Sideridis rosea Harv.
Rossland, B.C. (Danby).

Polia nugatis Sm.
Lillooet, B.C. (Phair).

Lasionycta rainieri Sm.
Lillooet, B.C. (Phair).

Tholera americana Sm.
Lillooet, B.C. (Phair).

Euxoa ochrogaster race *insignata* Walk.
Victoria, B.C. (Blackmore).

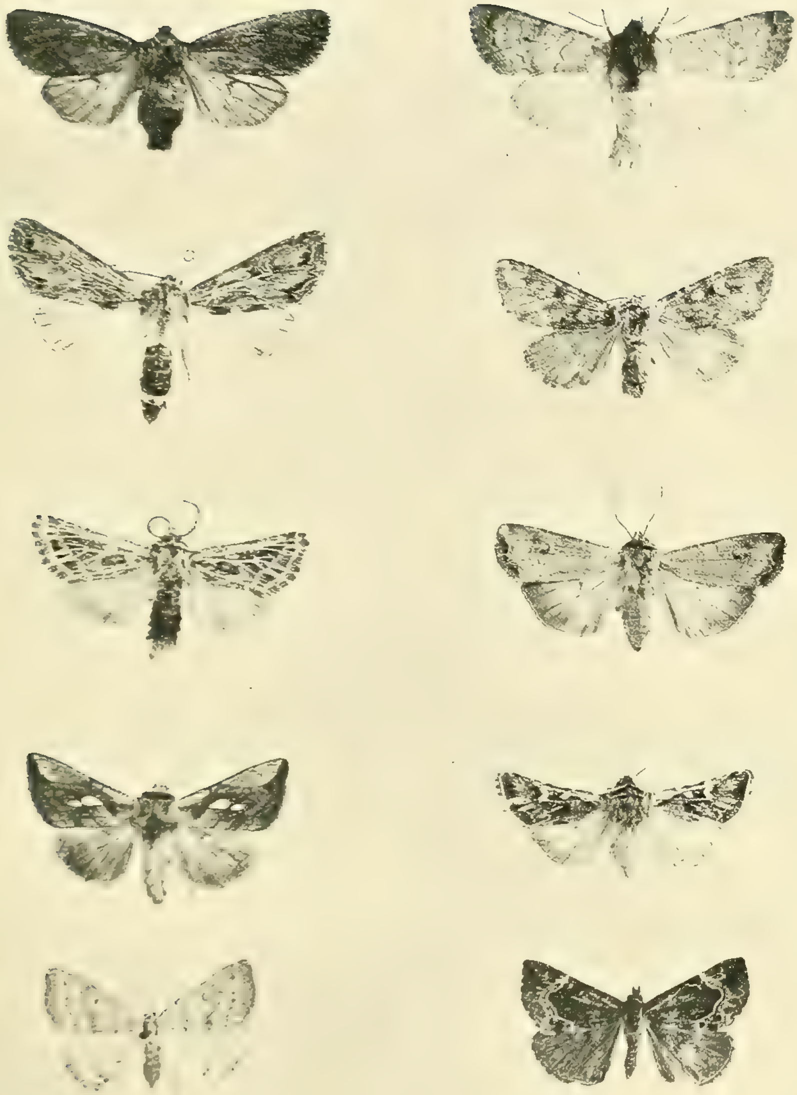
Autographa nichollæ Hamp.
Rosedale, B.C. (Blackmore).

Euxoa cinereopallida Sm.
Lillooet, B.C. (Phair).

Chytolita morbidalis Gue.
Cloverdale, B.C. (Blackmore).

Bomolocha abalienalis Walk.
Rosedale, B.C. (Blackmore).

PLATE I.



The house was named Nuskoahltnaixsta. Certain important chiefs in it were Smaiyakila, the head; SixsEkilaixla was a brother of the last; Atlkuntan and Nunatsonajen were also big chiefs and rulers. These were the spirits who presided over the cannibal dance.

2977. Storage-box (Pilkwa). This is a Bella Bella box.

2978. Spindle-whorl. Bella Coola.

BIRDS AND MAMMALS.

During the early part of the year a collection of bird-skins numbering 68 and mammal-skins numbering 154 were purchased from Mr. J. A. Munro, of Okanagan Landing; these skins are prepared in a most satisfactory manner, a number of them being collected in the Nicola District, from which the Department had very few specimens, thus making them very valuable in mapping out the distribution of species.

The Provincial Game Warden at Vancouver sent to the Museum two skins of wapiti, which had died while being transferred from the Colony Farm to be turned out in the Lillooet District. These animals were unfortunately badly skinned—in fact, ruined entirely for mounting purposes.

The raccoon group (*Procyon lotor*) in a wild crab-apple tree, which have been mounted for a great number of years and had become very much worn and faded, have been replaced by three good specimens, presented by Mr. J. N. Evans, Duncan, B.C.

The Museum was also fortunate in having a (albino) squirrel, "Vancouver Island Chickaree" (*Sciurus hudsonius vancouverensis*), presented by Mr. W. Fairall, which he shot on the Malahat, west side of Saanich Inlet, September 16th, 1917.

ENTOMOLOGY.

By E. H. Blackmore.

The weather conditions of the past season were very similar to those of the previous year, a very wet spring and early summer being followed by a dry hot spell which extended until late in September.

Throughout the valley of the Lower Fraser, the Coast District, and Vancouver Island the heavy rains of the early spring were continued on and off until the end of June. To those insects that in the pupal state pass the winter underground an abnormally heavy rainfall does a great deal of damage, causing many of the pupæ to rot, thereby reducing the number of individuals of those species. It also delays the appearance of many other species which, when they do emerge, are quickly killed off by the cold wet weather. On account of these conditions collecting in the early part of the season was exceedingly poor.

The late summer and early fall were very dry and warm, the sunny days being practically continuous for nearly three months. This continued hot weather brought out in greater numbers species which as a rule are rather scarce.

There was a rather severe outbreak of cutworms in the Victoria and Vancouver Districts during the month of May and the early part of June. A great deal of damage was done to small gardens and cultivated lots; in some instances whole beds of garden produce were completely devastated. The chief offenders were the dingy cutworm (*Feltia ducens* Walk.), the glassy cutworm (*Sideria devastator* Brace), and the caterpillars of *Euxoa messoria* Grote, *Euxoa excellens* Grote, and *Feltia vancouverensis* Grote. This latter species has not hitherto been considered of much economic importance, but I am convinced that it does as much damage as any of the others, with the possible exception of *Sideria devastator*.

During September a particularly bad infestation of shade and ornamental trees occurred in Victoria. This was caused by the larvæ of an undetermined species (*Tenthredo sp.*) of sawfly. In normal years they confine their ravages to the Lombardy poplar (*Populus dilatata* Ait.), which is their natural food-plant, but this year they occurred in such countless numbers that they attacked everything in sight, even invading houses and office buildings. The larvæ when full grown measure from 1¼ to 1½ inches in length and are of a brilliant yellow colour marked with round black spots on each segment. They are generally mistaken for the caterpillars of moths or butterflies, but they can always be distingushed by the fact that they have from six to eight pairs of prolegs; the false legs situated behind the three pairs of genuine legs near the front end of the body, while lepidopterous larvæ never have more than five pairs.

Lower Fraser Valley District.

At the request of the Director I made a three-weeks' collecting trip through this district, starting on June 11th and returning July 2nd. Taking into consideration the remarkable scarcity of insects in general up to the end of June, and also the number of wet days that occurred, the total amount of insects taken was very satisfactory; out of a total of nineteen days' actual collecting, there were six days of heavy rain, three days dull and cloudy, and ten days of bright sunshine.

On the rainy days, beating for Geometridæ and searching for Coleoptera was undertaken in the daytime, and at night collecting noctuids by "light" was successful. It was noticeable that more moths came to "light" on the wet nights than on those nights which had been preceded by a bright sunny day.

The localities visited were Vancouver, Cloverdale, and Rosedale. The Vancouver District was not at all productive, although trips were made to all the chief collecting-grounds, including Cauldfield (nine miles west of North Vancouver, on the P.G.E.), the famous Lynn Valley, Stanley Park, and South Vancouver, including the Eburne District.

Three days were spent at Cloverdale, twenty-five miles east of Vancouver, where some good material was taken, including some very interesting geometers taken while "dusking." The best district of all from a collecting point of view was certainly at Rosedale, where some valuable material was taken, some of it new to British Columbia.

Rosedale is situated at the apex of the valley, being about eighty miles from Vancouver, and is on the south side of the Fraser River (nearly opposite to Agassiz, at which place the fine Experimental Farm belonging to the Dominion Government is situated). It is heavily timbered on the north side, but skidways belonging to the shingle-mills in operation there furnished a convenient means of getting into the heart of the woods.

Mount Cheam, rising to a height of 6,925 feet, is situated about two miles away and is a magnificent sight when the rays of the setting sun strike its rugged peaks. An ascent of this mountain was contemplated, as some very desirable alpine species are known to occur there, but owing to the great depth of snow on the trails this was found to be impossible; in some places the snow was estimated as being from 30 to 40 feet in depth; three fresh falls of snow occurred during the nine days spent there. I found out from some of the inhabitants that the ascent to the top cannot be undertaken until the last week in July on account of the snow, and then it is only possible for about three or four weeks.

The total number of insects taken on the trip was 883, made up as follows: Lepidoptera, 589; Coleoptera, 72; Hymenoptera, 105; Diptera, 102; and Odonata, 15. The Lepidoptera were comprised of the following: Butterflies, 55; moths (other than geometers), 170; geometers, 272; and Microlepidoptera, 92.

The nomenclature used is that contained in Messrs. Barnes and McDunnough's Check-list of Lepidoptera of Boreal America, which has been adopted by the Museum, and which will be followed in all future Museum publications.

The scarcity of butterflies seen on the trip was very noticeable, a short series of *Pontia napi marginalis* Scud. being taken, while *Parnassius clodius claudianus* Stich. was captured at North Vancouver and at Rosedale. These were the only two species worthy of mention. Amongst the noctuids a nice series of both *Acronycta hesperida* Sm. and *A. oblinata* A. & S. were taken, most of them being newly emerged. Three specimens of that very desirable species *Autographa nichollæ* Hamp. were taken at "light" at Rosedale. Other species of interest were: *Polia lubens glaucopis* Hamp; *Luperina passer* Gue.; and *Hyppa xylinoides* Gue. In the subfamily *Hypeninæ* a number of specimens were taken, including a good series each of *Chytolita morbidalis* Gue. and *Hypena humuli* Harr. Three female specimens of *Bomolocha palparia* Walk. were captured at Rosedale; these are, to my knowledge, the first of this sex recorded for British Columbia, although I took a male specimen at Goldstream on June 16th, 1915; this was figured in the Report of the Provincial Museum, 1916, Plate VII.

A fine male specimen of *Bomolocha abalienalis* Walk. was taken at Rosedale on June 25th. This has never been recorded previously from British Columbia, and is an inhabitant of the Eastern and Middle States.

A nice collection of Geometridæ was made, including a single specimen of *Hydrelia albifera* Walk., at Rosedale on June 26th; this is the first authentic record of this species west of Kaslo.

Other desirable species taken at various localities in the valley were: *Cosymbia lumenaria* Hbn.; *Calocalpe undulata* Linn.; *Dysstroma occidentata mutata* Taylor; *Xanthorhœ designata emendata* Pears; *Euphyia multiferata* Walk.; *Epirrhœ alternata* Mull.; *Eupithecia casloata* Dyar; *E. castigata* Hub.; and *Metanema quercivoraria* Gue.

Amongst the micros two of particular interest are *Pyrausta ochosalis* Dyar, taken at Cloverdale (only previous record from Kaslo), and *P. funebris* Strom., captured at Rosedale.

The Coleoptera and Hymenoptera have not been worked over as yet, but some work has been done on the Diptera, many of which, however, await further determination.

ODONATA (DRAGON-FLIES).

A small collection of about forty specimens were recently submitted to Dr. E. M. Walker, of Toronto, for identification. They comprised seventeen species, three of which, it is pleasing to note, are species that have not previously been recorded from British Columbia, viz.:—

Cœnagrion resolutum Hagen. One female taken by W. A. Newcombe at Chilcotin on June 25th, 1915.

Leucorrhinia intacta Hagen. Two males taken by J. A. Munro at Okanagan Landing on July 6th, 1916, and one male taken by W. R. Carter at Alberni on July 29th, 1915.

Leucorrhinia borealis Hagen. One male taken by W. A. Newcombe at Chilcotin on June 22nd, 1915.

Hereunder we publish a list of the remaining fourteen species, with their localities, and hope at some future date to give a complete list of the Odonata of British Columbia, an order which has hitherto been somewhat neglected:—

Enallagma calverti Morse. Vancouver (E. H. Blackmore).
Enallagma cyathigerum Charp. Chilcotin (W. A. Newcombe); Cranbrook (C. Garrett).
Enallagma carunculatum Morse. Alberni (W. R. Carter).
Æshna interrupta nevadensis Walker. Quesnel Forks (Newcombe).
Tetragoneuria spinigera Selys. Alberni (Carter).
Cordulia shurtleffi Scudd. Vancouver (Blackmore); Cranbrook (Garrett).
Libellua quadrimaculata Linn. Cranbrook (Garrett).
Libellua lydia Drury. Cloverdale (Blackmore); Rosedale (Blackmore).
Sympetrum scoticum Donovan. Quesnel Forks (Newcombe).
Sympetrum costiferum Hagen. Okanagan Landing (Munro).
Sympetrum decisum Hagen. Okanagan Landing (Munro).
Sympetrum obtrusum Hagen. Okanagan Landing (Munro).
Leucorrhinia glacialis Hagen. Okanagan Landing (Munro).
Leucorrhinia hudsonica Selys. Vancouver (Blackmore); Cranbrook (Garrett).

RARE AND UNCOMMON INSECTS TAKEN IN BRITISH COLUMBIA DURING 1917.

Under this heading we propose to give a list of the rare and uncommon insects which have been taken during the past season at various localities in the Province of which we have any knowledge. Properly authenticated records of these insects from any collection in the Province will be gladly welcomed. It is hoped by this means to get a better knowledge of the distribution and geographical range of our lesser-known species, which in some instances may eventually prove of great economic value.

Victoria.—During the past season the writer, with the assistance of Mr. Edward Cooke and Mr. Arthur Robinson, of this city, has been fortunate in taking many desirable species of noctuids and geometrids.

From a pupa found in the city park I bred a splendid female specimen of *Smerinthus cerisyi opthalmicus* form *pallidulus* Edw. This is a very rare form and is new to British Columbia. The ground colour is of a beautiful pale fawn, in contradistinction to the dark olive-brown colour of typical *opthalmicus*. Amongst the noctuids taken were the following uncommon species: *Euxoa intrita reuda* Streck; *E. terrena* Sm. (very rare); *E. divergens* Walk.; *E. atrifera* (rare); *Matuta apposita* Grt.; *Eriopyga infidelis* Dyar; *Eurotype contadina* Sm.; *Eumichtis loda* Streck; *Septis antennata purpurissata* B. & McD. (rare); *Trachea cinefacta* Grt.; *Ufeus electra*, Sm.; *Luperina passer* Gue. (rare); and *Autographa ampla* Walk. This latter is the first record from Victoria that I know of, although it has previously been taken at Duncan and Wellington.

Several interesting specimens were taken amongst the Geometridæ, including two new to the Province—viz., *Venusia duodecemlineata* Pack. and *Eupithecia borealis* Hlst. The former was taken at rest on an electric-light pole by the writer in April. It is closely allied to *V. pearsalli* Dyar (which is one of our commonest spring species), but can be distinguished by its generally darker colour and the wavy extra-discal line on the forewings. The latter was taken at "light" by Mr. A. Robinson on June 27th, and another specimen was taken by Mr. W. Downes at Oak Bay on the 30th of the same month. This species was originally described from Manitoba.

The other geometers of more than passing interest were: *Lobophora nivigerata* Walk.; this has been an exceedingly rare species until this year, when we had the good fortune to take half a dozen specimens; *Cosymbria dataria* Hlst.; *Calocalpe undulata* Linn.; *Nematocampa limbata* Haw. As recorded in last year's Annual Report, this pretty little geometer had not been recorded from this district for twelve years until 1916, when two specimens were captured at "light." This season a special look-out was kept, with the result that a nice series of eleven specimens were taken. It is evidently very local. *Metanema inatomaria* Gue.; a single specimen was taken at "light" in the same locality as the one taken last year. *Pero occidentalis* Hulst.; two males were taken on June 4th and 7th respectively. This is a very interesting record, as it is rather a rare species and not previously known west of Penticton.

We have specimens from the latter locality and also from Rossland. The *Azelina occidentalis* Hulst., given as "generally distributed" in the 1906 Check-list of British Columbia Lepidoptera, is an error, as the species there referred to is *Pero giganteus* Grossb., which has a known range from Vancouver Island to Kaslo. The chief determining character of *occidentalis* is the dentate antennæ of the male; in the other three species of *Pero* which occur in British Columbia the antennæ are filiform in both sexes.

Mr. W. B. Anderson, Inspector of Indian Orchards, took a single specimen of *Neptyia phantasmaria* Streck in September. This is also an interesting record, as this, together with one taken by the writer in September, 1915, constitutes the only known records of this species in Victoria.

The same collector also took a specimen of *Hæmorrhagia diffinis rubens* Hy. Edw. in his garden at Oak Bay in September. This species is single-brooded and flies about the first week in May; the most probable explanation is that the cocoon, which is generally spun up under fallen leaves, was lying in an exposed place subject to the direct rays of the sun, and consequently brought to maturity at the end of the summer instead of lying dormant until the following May.

The following noctuids, collected by Mr. W. Downes, of Oak Bay, are worthy of mention: *Euxoa catenula* Grt. (new to this district); *E. esta* Sm. (rare); *Polia lubens glaucopis* Hamp.; *Septis multicolor* Dyar (rather rare); *Trachea finitima cerivana* Sm.; and *Autographa celsa* Hy. Edw. He also took a short series of *Eupithecia obumbrata* Taylor on Mount Tolmie in May. This is the first record of this species in Victoria. It is evidently a mountain form, as it has been taken by Mr. Day on Mount Tzouhalem, near Duncan, and also on the mountains at Goldstream.

I nearly forgot to mention that a school-boy captured a specimen of *Pseudohazis eglanterina* Bdv. (the sheep-moth) near the Ross Bay Cemetery. This is the first record of this species that we have from Victoria; it occurs sparingly at Goldstream, Shawnigan, and Duncan.

Goldstream.—On one of the writer's occasional trips to this locality a number of noctuid moths were taken after dark feeding on a large patch of cultivated sunflowers, amongst which were specimens of *Euxoa esta* (rare); *E. tessellata tesselloides* Grt.; and *Rhynchagrotis rufipectus* Morr. On another occasion a beautiful specimen in perfect condition of *Cleora excelsaria* Streck was taken. This is the first capture of this exceedingly rare geometer that has been recorded for about thirteen years. It was taken at rest on a fire-blackened tree-trunk early on the morning of June 4th. An extensive search for further specimens was made, but no others were seen.

A nice series of *Perizoma costiguttata* Hulst. was obtained on the 3rd and 4th of the same month; this species is evidently very local in its habits.

Duncan.—Mr. G. O. Day, of Quamichan Lake, has succeeded in breeding a short series of that uncommon deltoid *Bomolocha toreuta* Grt. The larvæ were found feeding on dogwood in

August of 1916, and the adults emerged at the end of the following May. This is a valuable record, as the knowledge of the food-plants of a great many of our species is very limited.

It is also interesting to note that Mr. Day also took a fine specimen of *Venusia obsoleta* Swett on April 18th. This species was described last year from specimens found in the Harvey and the Museum collections taken in 1908, and was figured in the Provincial Museum Report for 1916 on Plate VIII.

Mr. A. W. Hanham, also of Quamichan Lake, took a beautiful geometer on June 20th, which turned out to be *Stamnoctenis morrisata* Hulst., a species which was described from Arizona and is entirely new to our fauna.

Cumberland.—A few specimens of *Cercyonsis alope ariane* Bdv. were taken in this district in July. This is noteworthy as no species of this genus has ever been recorded from Vancouver Island before. *Boopis* Behr., a form of *ariane* with fewer spots on the under-side, occurs in the Interior from Lillooet to Cranbrook.

Savary Island.—Mr. R. S. Sherman, of Vancouver, who spends his annual vacation on this island, reports that he has seen specimens of *Danaus archippus* Fabr. (the milkweed butterfly) there every year for several years, and that this year he found several patches of milkweed growing there. As this is the natural food-plant of *archippus*, the probabilities are that it breeds on this island, but this fact will have to be proved before it can be accepted as such. This butterfly has a cosmopolitan range, but has not been known to breed in British Columbia, although occasional specimens have been taken in various parts of the Province. He also mentions that *Epargyreus tityrus* Fabr. (the large silver-spotted skipper) was very common in July. It has been previously recorded from Vancouver and doubtfully from Glacier.

Cloverdale.—Mr. Bevan L. Hugh, who collected a number of geometers during the past season, captured a specimen of *Philobia ulsterata* Pearson. This is an exceedingly rare geometer, and is the first taken to my knowledge since 1908, when the late Mr. A. H. Bush took one in Vancouver. Amongst others taken by the same collector was a nice series of *Spargania magnoliata pernotata* Hulst. and a fine specimen of *Selenia alciphearia ornata* B. & McD.

Quesnel Forks.—While engaged on business connected with the Provincial Fisheries Department in this district in late August and September, Mr. W. A. Newcombe, of Victoria, collected a few insects which proved of great interest, as we had not received any material from this particular district previously. The butterflies taken were *Phyciodes campestris* Behr.; *Polygonia progne* Cram.; and *Aglais J.-album* Bdv. & LeCon.

A short series of *Hypoprepia miniata* Kby. (the scarlet-winged lichen-moth) was obtained; this has previously been recorded from Kaslo. The Noctuidæ comprised *Euxoa mimallonis gagates* Grt.; *Graptolitha georgii* Grt.; *Catocala briseis* Edw. (previously recorded from Kaslo); *Autographa rectangula* Kirby; and *Scoliopteryx libatrix* Linn. The geometers proved scarce, only three species being taken, viz.: *Lygris xylina* Hulst.; *Hydriomena furcata* Thun; and *Ceratodalia gueneata* Pack.

Lillooet.—In the beginning of August Mr. A. W. A. Phair took two or three specimens of a bright coppery-red butterfly which we identified as *Heodes cupreus* Edw. It was taken at Mount McLean at an altitude of 7,000 feet, and is a new record for British Columbia. It is very closely allied to *H. snowi* Edw., which also occurs in British Columbia, but is very rarely taken; *cupreus* is brighter in colour and more heavily spotted than *snowi*. He has kindly donated a pair for the Museum collection.

Mr. Phair, on a recent visit to Victoria, brought with him a large amount of material for identification; as many of the noctuids were new to us, we sent them to Dr. J. McDunnough for determination, with the result that many of them proved new to British Columbia, and materially add to the known lepidopterous fauna of this Province.

The following is a list of those new to British Columbia: *Euxoa cinereopallida* Sm.; *Agrotis piscipellis* Grt.; *Rynchagrotis vittifrons* Grt.; *Lasionycta rainieri* Sm.; *Polia nugatis* Sm.; *Polia farnhami* Grt.; *Tholera americana* Sm.; and *Cerapoda oblita* Grt. Amongst the others were some very desirable species, the following being of special interest as extending our knowledge of their known range; *Euxoa satiens* Sm.; *E. murdocki* Sm.; *Lasiestra phoca luteola* Sm.; and *Pseudanarta flava* Grt.

NEW BRITISH COLUMBIA LEPIDOPTERA.

Under this heading we publish an annotated list of those new species and varieties which have been described during the past season. We believe that this list will be of value to those entomologists in the Province who are unable to keep in touch with all the current literature on the subject, but who are desirous of keeping their collections and check-lists up to date in nomenclature and scientific arrangement.

Glaucopsyche lygdamus columbia Skin. This new race of *lygdamus* was described by Dr. Henry Skinner in the Ent. News for May, 1917. The type and paratypes are from Port Columbia, Wash. Amongst other localities mentioned for this species is Corfield, Vancouver. We presume this is meant for Corfield, near Duncan, on Vancouver Island. This pretty blue butterfly is fairly common all over the Island about May, and has been going under the name of *G. lygdamus behrii* Edw. (*vide* Report, Provincial Museum, 1916). The true *behrii* is a California race of *lygdamus*, with San Francisco as its probable nimotypical locality; *columbia* differs from *behrii* in being of a much deeper shade of blue and the spots on the under-side of the wings being larger.

In Vol. III., No. 4, Cont. Lept. No. Amer., March, 1917, Messrs. Barnes and McDunnough describe a number of new species and varieties of Geometridæ, amongst which are eight new to British Columbia. As these "Contributions" were published subsequent to the issuance of their new check-list, the following additions must be made to it:—

Trichodesia albovittata tenuifasciata B. & McD. This form was described from Spirit Lake, Idaho. In the Barnes collection there were specimens from Wellington, B.C., and the writer has a specimen taken by Mr. W. H. Danby at Ymir in 1900. In this variety the white band of primaries is much narrower, being only 1 mm. in width.

Thera georgii benesignata B. & McD. This racial name has been given to the Vancouver Island form on account of its larger size, paler colour, and the strong contrast between the brown median and basal areas and the ground colour. Typical *georgii* is now restricted to the Nevada species. The types of *benesignata* are from Wellington and the paratypes from Duncan.

Mesoleuca gratulata latialbata B. & McD. Described from three specimens from Plumas County, Cal. In this form the median white band is strongly constricted centrally below the cell, due to an outward bulge in the dark basal area and a strong inward bend below vein 4 of the outer dark area. I have a specimen from Kaslo which Dr. McDunnough considers this form, although the basal line is not quite typical.

Epirrhœ plebeculata vivida B. & McD. This is the species hitherto known as *Rheumaptera rubrosuffusata* Pack., which occurs commonly throughout the Island and Lower Mainland. *Rubrosuffusata* has been found to be a synonym of *plebeculata*, which was described by Guenee, from California, and the racial name of *vivida* is proposed for our Vancouver Island form on account of the coloration being much better defined.

In describing a new species, *Phasiane ponderosa*, Messrs. Barnes and McDunnough mention a variety of it under the form name of *demaculata*, in which the cross-lines tend to become obsolescent, especially in the females. The types are from Calgary, Alta., but one of the female paratypes is from Field, B.C. We have two rather worn females, one from Atlin, taken by E. M. Anderson, and one from Chilcotin, taken by W. A. Newcombe, so that although uncommon it is widely distributed.

Itame plumosata B. & McD. This pretty yellow and brown geometer was described from specimens taken in various localities in Arizona and Utah. We have a male specimen from Mount McLean near Lillooet, taken in July, 1916, by E. M. Anderson. It is rather remarkable that this species should turn up here, as it is a long way from its nimotypical locality; it is apparently a high altitude species and may turn up on any of the high mountains in the intervening country.

Cleora satisfacta B. & McD. Described from one male and one female taken at Kaslo. This is closer in general habitus to *excelsaria* Streck and *albescens* Hulst. than to any other *Cleora* that occurs in the Province.

Æthaloptera anticaria fumata B. & McD. This is the insect from Kaslo that has been previously known as *Æ. intextata* Walk. Dr. McDunnough states that *anticaria* should be used for the common Eastern species instead of *intextata*, and proposes the name of *fumata* for the

PLATE II.

GEOMETRIDÆ.

Cleora excelsaria Streck.
Goldstream, B.C. (Blackmore).
(Very rare.)

Stamnoctenis morrisata Hulst.
Duncan, B.C. (Hanham).
(New to British Columbia.)

Xanthorhœ blackmorei Swett.
(Paratype male.)
Victoria, B.C. (Blackmore).
(New to science.)

Xanthorhœ blackmorei Swett.
(Paratype female.)
Victoria, B.C. (Blackmore).
(New to science.)

Xanthorhœ macdunnoughi Swett.
(Allotype female.)
Victoria, B.C. (Blackmore).
(New to science.)

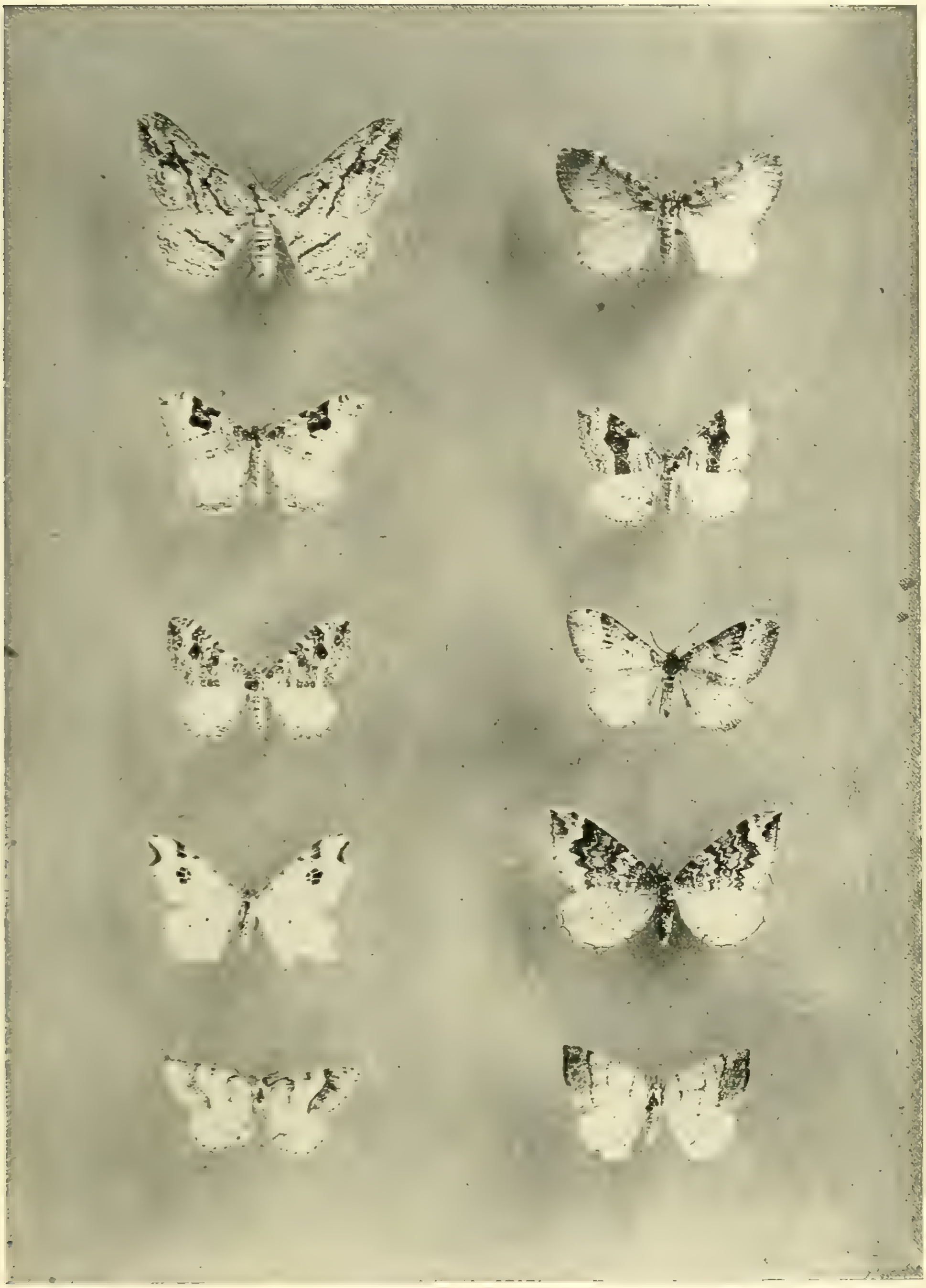
Xanthorhœ atlinensis Swett.
(Paratype male.)
Atlin, B.C. (Anderson).
(New to science.)

Philobia ulsterata Pears.
Cloverdale, B.C. (Bevan Hugh).
(Very rare.)

Lygris destinata race *schistacea* Warr.
Kaslo, B.C. (Cockle).
(New to British Columbia.)

Itame plumosata B. & McD.
Armstrong, B.C. (Downes).
(New to British Columbia.)

Drepanulatrix carnearia Hulst.
Rossland, B.C. (Danby).
(New to British Columbia.)



Kaslo race, which is more evenly suffused with smoky brown and with the lines more or less obsolescent. The types are six males from Kaslo, presumably taken by Mr. J. W. Cockle. This locality is the only one from which we have any record of this species.

In addition to the foregoing, it is as well to note that Messrs. Barnes and McDunnough have given the study of *Sicya macularia* Harris and its various races considerable attention, with the result that *crocearia* Pack. is rescued from the synonymy and applied to the form that occurs in the Great Basin Region of the United States, and also to a similar form occurring on Vancouver Island. For the benefit of those collectors who may think that they have two different varieties of this species, it is as well to add that this form is sexually dimorphic. In a long series taken by the writer it is noticeable that while the females in general are much scarcer than the males, the dimorphic female is far more prevalent than the typical one.

In Cont. Lep. No. Amer., Vol. IV., No. 1, May, 1917, Messrs. Barnes and McDunnough have revised the whole of the genus *Hydriomena*. Many radical changes have been made and new species added, some of which refer to our British Columbia forms, so that it will be advisable for collectors to alter their check-lists accordingly.

Hydriomena albifasciata victoria B. & McD. This has always been listed as *reflata* Grt. in British Columbia collections, but this name has been restricted to an Arizona race of *albifasciata*, and the name *victoria* has been given to the Vancouver Island form; the types being three males and two females from Victoria.

Hydriomena exculpata tribulata B. & McD. This is a grey form of *exculpata*, a new species described from Ketchikan, Alaska. The localities given for the form *tribulata* are Oregon, Colorado, and Kaslo, B.C.

Hydriomena perfracta exasperata B. & McD. The race *exasperata* was described from two specimens taken by the late Rev. G. W. Taylor, one at Departure Bay, near Nanaimo, and the other at Wellington. It is evidently very rare. One male specimen was taken by the writer at Victoria on May 19th, 1914.

Hydriomena renunciata columbiata form *pernigrata* B. & McD. The types of this form came from Glacier National Park, Montana; the paratypes, one male and one female, from Skagit Basin, B.C.; and one male from Stikine River, B.C. The latter probably collected by Theodore Bryant, of Ladysmith, who collected in that district when with a survey party.

Hydriomena edenata grandis B. & McD. The racial name of *grandis* has been given to our Vancouver Island form, which has been previously known as *edenata* Swett. Typical *edenata*, which was described from Eden Valley, Monterey County, Cal., is very much smaller than the one we get here and is shaded with a warm brown, while our form is tinged with green.

The genus *Xanthorhœ*, which contains several distinct groups of species, has been badly mixed up in the past, and much misidentification of species has ensued.

As it was also felt that there were several species, or at least good varieties, going under the same name, the writer collected extensively in this genus for several years, with the result that Mr. L. W. Swett, the well-known geometridist, described several new forms of the *defensaria* group, which were illustrated in the Annual Report of the Provincial Museum for the year 1915, Plate VII., Figs. 5 to 12.

In the *pontiaria-fossaria* group Mr. Swett has just described the following three new species in the Can. Ent., Vol. 50, No. 1, p. 17 *et seq.*:—

Xanthorhœ macdunnoughi Swett. This occurs all over the southern portion of Vancouver Island, but it is not common by any means. The types are from specimens taken by the writer at Victoria. Paratypes of each sex have been placed in the Museum collection.

Xanthorhœ atlinensis Swett. This species was taken at Atlin by E. M. Anderson in 1914, and was described from eight specimens, all male. It is close to *fossaria* Taylor, which was described from Mount Cheam. Paratypes are in the Museum collection.

Xanthorhœ blackmorei Swett. Described from material taken by the writer at Goldstream and Victoria. This species is very distinct, as in most cases the blackish median band becomes obsolescent below the median vein. A male paratype has been placed in the Museum collection. Illustrations of these new species will be found in an accompanying plate.

BOTANY.

During the season of 1917 there have been numerous accessions to the Herbarium of the Provincial Museum, notably the presentation of a large collection of plants of Vancouver Island, collected, mounted, and named by Professor John Macoun since he has resided at Sidney, B.C., together with a collection of Musci and Lichens made by him on Vancouver Island and a portion of the Mainland of this Province. This collection, made and named by so eminent a botanist, will be a valuable acquisition as a source of reference in the identity and for determination of other specimens.

Mr. W. B. Anderson, of Victoria, has contributed a large number of plants, collected in his leisure hours, from the Interior, which cover many localities, from Fort George to Penticton and extending through West Kootenay. This collection will undoubtedly add much new material to the Herbarium, especially as regards distribution.

The Fort George specimens cover a new area not hitherto represented in the collection. A few of the plants from the various localities mentioned are as follows:—

Chenopodium botrys.
Axyris amarantoides.
Calochortus elegans.
Melampyrum lineare.
Anemone virginiana.
Chrysothamnus nauseosus.
Chimaphila menziesii.
Antennaria rosea.
Anthriscus sativa.
Gilia aggregata.
Physostegia parviflora.
Orthocarpus luteus.
Potentilla flabelliformis.
Galeopsis tetrahit.
Crepis tectorum.
Echium vulgare.
Hieracium scouleri var. *cynoglossoides.*
Erigeron acris var. *drœbachiensis.*
Senecio balsamitæ var. *thomsoniensis.*

Among these *Axyris amarantoides* L. and *Crepis tectorum* L., introduced plants, appear to be additions to the flora of British Columbia.

Mr. W. A. Newcombe has also donated a representative collection made in the vicinity of Quesnel Lake and a portion of the Chilcotin country during the seasons of 1916 and 1917; amongst the rarer species and some not previously reported from these regions are the following:—

CHILCOTIN, 1916.

Stephanomeria minor.
Calochortus macrocarpus.
Solidago decumbens.
Mentzalia lævicaulis.

QUESNEL LAKE, 1917.

Epipactis repens var. *ophioides.*
Habenaria orbiculata.
Parnassia palustris.
Rubus strigosus.
Spiræa menziesii.
Dracocephalum parviflorum.
Stephanomeria minor.
Alnus tenuifolia.
Mitella nuda.
Ribes glandulosum.
Ribes oxyacanthoides.
Vaccinium canadense.
Hieracium umbellatum.
Senecio eremophilus.

In this as in Mr. Anderson's collection there are a number of doubtful specimens, which have been forwarded to Mr. J. M. Macoun, Chief of the Division of Biology, Geological Survey, Ottawa, and Professor J. K. Henry, of the University of British Columbia, for comparison with authenticated specimens and identification, and until such time as this work has been completed no adequate list can be chronicled.

Specimens of two additions to the flora of Vancouver Island, *Arnica cordifolia* and *Romanzoffia unalaschensis*, collected by Dr. C. F. Newcombe, of Victoria, have been donated by him to the collection in the Herbarium.

On June 16th, 17th, and 18th, Mr. F. Kermode, Director, accompanied by Dr. F. C. Newcombe, of Victoria, made a small collection of the more uncommon plants growing around Bella Coola; the following, which are usually plants growing at much higher altitude, were collected on the river-bottom, a little above sea-level:—

Epilobium latifolium.
Mimulus lewisii.
Pentstemon diffusus.

In the matter of distribution the following interesting species were collected in close proximity to salt water:—

Trautvetteria grandis.
Ranunculus orthorynchus var. *platyphyllus.*
Hemieva ranunculifolia.
Corydalis sempervirens.
Aralia nudicaulis.
Senecio balsamitæ var. *thomsoniensis.*

The Director and his assistant made a small collection on August 1st and 2nd of the more interesting plants of Mount Arrowsmith, undoubtedly one of the richest floral fields of Vancouver Island. The following specimens were collected, which appear to be additions to the flora of Vancouver Island not hitherto recorded:—

Oxyria digyna.
Lewisia pygmæa.
Saxifraga lyallii.
Antennaria rosea.
Draba nivalis.
Silene acaulis.
Osmorrhiza purpurea.
Agoseris glauca.

Other species of interest were:—

Lewisia columbiana.
Erysimum elatum.
Saxifraga punctata.
Potentilla dissecta var. *glaucophylla.*
Lomatium martindalei var. *augustatum.*
Cladothamnus pyrolæflorus.
Mimulus alpinus.
Pedicularis ornithoryncha.
Arnica amplexicaulis.
Ranunculus eschscholtzii.
Saxifraga bronchialis.
Saxifraga tolmiei.
Potentilla villosa.
Epilobium anagallidifolium.
Dodecatheon pauciflorum.
Phyllodoce glanduliflorus.
Arnica latifolia.
Senecio triangularis.

A few plants were also collected in the vicinity of Long Beach, on the west coast of Vancouver Island, the latter part of September, including:—

Polypodium scouleri.
Carex macrocephala.
Listera caurina.
Gentiana douglasiana.
Stachys ciliata var. *pubens.*
Botrychium silaifolium.
Hydastylus brachypus.
Empetrum nigrum.
Franseria bipinnatifida.

A large number of specimens have been mounted by Miss H. J. Hendry, now in charge of the office of the Museum, and placed in the collection of the Herbarium; a card-index has been completed of the mounted specimens, and the whole have been arranged in their systematic order of families, according to the check-list of the plants of Gray's Manual.

A record has also been made of all duplicates and unmounted material, and the same placed in genus-covers and arranged in the same systematic order.

The nucleus of the Herbarium, the original collection loaned by the Department of Agriculture, and made by Mr. J. R. Anderson at the time he was Deputy Minister of Agriculture, has been rearranged and placed in the accepted order; this collection still remains in its original genus-covers and is in an excellent state of preservation, due to the great care Mr. Anderson took in preparing his specimens, many of which were collected twenty years ago.

From an educational standpoint the collection now in the Herbarium is available to teachers and other students of botany, and should prove a great facility to them for comparison in identifying any plants they do not know. A number of the latest and most authentic books on our flora are also at hand for reference; these will be found in the office of the Museum.

LIST OF VANCOUVER ISLAND PLANTS COLLECTED AND PRESENTED TO THE PROVINCIAL MUSEUM.

By Professor John Macoun, of Sidney, B.C.

Polypodiaceæ.

Adiantum pedatum L.
Aspidium spinulosum (O. F. Müller) Sw., var. *dilatatum* (Hoffm.) Hook.
Asplenium felix-fœmina (L.) Bernh.
Cystopteris fragilis (L.) Bernh.
Cryptogramma acrostichoides R. Br.
Lomaria spicant Desv.
Polypodium occidentale (Hook.) Maxon.
Polystichum braunii (Spenner) Fée, var. *andersoni.*
Polystichum munitum (Kaulf.) Presl.
Pteris aquilina lanuginosa Bong.
Woodwardia radicans (Smith), var. *americana* Hook.

Ophioglossaceæ.

Botrychium simplex Hitchc.
Botrychium silaifolium Presl.
Botrychium virginianum (L.) Sw.

EQUISETACEÆ.

Equisetum arvense L.
Equisetum sylvaticum L.
Equisetum telmateia Ehrh.

LYCOPODIACEÆ.

Lycopodium clavatum L.
Lycopodium lucidulum Michx.

SELAGINELLACEÆ.

Selaginella wallacei Hieron.

ISŒTACEÆ.

Isoetes echinospora Durieu.

TAXACEÆ.

Taxus brevifolia Nutt.

PINACEÆ.

Abies grandis Lindl.
Chamæcyparis nootkatensis (Lamb.) Spach.
Juniperus scopulorum Sarg.
Picea sitchensis Carr.
Pinus contorta Dougl.
Pinus monticola Dougl.
Pseudotsuga taxifolia Britt.
Thuja plicata Donn.
Tsuga heterophylla (Raf.) Sarg.

TYPHACEÆ.

Typha latifolia L.

SPARGANIACEÆ.

Sparganium americanum Nutt., var. *androcladum* Engelm.
Sparganium simplex Huds.

GRAMINACEÆ.

Agropyron pseudorepens var. *magnum* Scribn. & Smith.
Agrostis alba L.
Agrostis alba L., var. *stolonifera.*
Agrostis exarata Trin.
Agrostis hyemalis (Walt.) Tuckerm.
Agrostis microphylla Steud.
Agrostis vulgaris (With.) Thurb.
Aira caryophyllea L.
Aira precox L.
Alopecurus californicus Vasey.
Alopecurus geniculatus L., var. *fulvus* (Smith) Sonder.
Alopecurus pratensis L.
Anthoxanthum odoratum L.
Arrhenatherum avenaceum Boiss.
Avena fatua L., var. *glabrata* Peter.
Bromus carinatus hookerianus (Thurb.) Shear.
Bromus commutatus Schrad.
Bromus glabrescens (Coss.) Shear.
Bromus hordeaceus L.
Bromus marginatus Nees.
Bromus maximus Desf.
Bromus pacificus Shear.
Bromus secalinus L.
Bromus sitchensis Bong.
Bromus sterilis L.
Bromus tectorum L.
Bromus vulgaris Shear.
Cinna latifolia (Trev.) Griseb.
Cynosurus cristatus L.
Cynosurus echinatus L.
Dactylis glomerata L.
Danthonia americana Scribn.
Danthonia spicata (L.) Beauv.
Deschampsia cæspitosa (L.) Beauv.
Deschampsia calycina Presl.
Deschampsia elongata (Hook.) Munro.
Elymus arenarius L.
Elymus borealis Scribn.
Elymus glaucus Buckl.
Elymus glaucus Buckl., var. *hirsutus* Malte.
Elymus vancouverensis Vasey.
Festuca bromoides L.
Festuca elatior L.
Festuca megalura Nutt.
Festuca occidentalis Hook.
Festuca pacifica Piper.
Festuca rubra L.
Festuca subuliflora Scribn.
Festuca subulata Trin.
Glyceria borealis (Nash) Batchelder.
Glyceria nervata Trin.
Glyceria nervata Trin., var. *elata* (Nash) Piper.
Glyceria pauciflora Presl.
Glyceria scabra Malte., *sp. nov.*
Holcus lanatus L.
Hordeum nodosum L.
Hordeum murinum L.
Kœleria cristata (L.) Pers.
Lolium multiflorum Lam.
Lolium perenne L.

Phalaris arundinacea L.
Phalaris canariensis L.
Phleum pratense L.
Phragmites communis Trin.
Poa annua L.
Poa compressa L.
Poa confinis Vasey.
Poa howellii Vasey.
Poa pratensis L.
Poa sandbergii Vasey.
Poa triflora Gilib.
Poa trivialis L.
Polypogon monspeliensis (L.) Desf.
Polypogon littoralis (With.) Smith.
Puccinellia lemmoni Vasey.
Puccinellia distans (L.) Parl.
Stipa minor (Vasey) Scribn.
Stipa nov. sp. Malte.

CYPERACEÆ.

Carex arcta Boott.
Carex athrostachya Olney.
Carex aurea Nutt.
Carex bolanderi Olney.
Carex canescens L.
Carex cryptocarpa C. A. Mey.
Carex deweyana Schwein.
Carex diandra Schrank, var. *ampla* Bailey.
Carex dives Holm.
Carex festiva Dew.
Carex festiva pachystachya (Cham.) Bailey.
Carex furva (Bailey).
Carex hendersoni Bailey.
Carex howellii Bailey.
Carex læviculmis Meinsch.
Carex leptalea Wahl.
Carex mirata Dew.
Carex œderi Retz.
Carex pennsylvanica Lam., var. *vespertina* Bailey.
Carex phæocephala Piper.
Carex pratensis Drejer.
Carex rossii Boott.
Carex stellulata Good, var. *cephalantha* Bailey.
Carex stipata Muhl.
Carex teretiuscula ramosa Boott.
Carex utriculata Boott.
Carex vulgaris lipocarpha Holm.
Dulichium arundinaceum (L.) Britt.
Eleocharis palustris (L.) R. & S.
Scirpus americanus Pers.
Scirpus microcarpus Presl.
Scirpus occidentalis (Wats.) Chase.
Scirpus riparius (R. Br.) Spreng.
Scirpus robustus Pursh.
Scirpus validus Vahl.

ARACEÆ.

Lysichiton camtschatcensis (L.) Schott.

LEMNACEÆ.

Lemna trisulca L.
Spirodela polyrhiza (L.) Schleid.

JUNCACEÆ.

Juncus balticus Willd.
Juncus bufonius L.
Juncus columbianus Coville.
Juncus effusus L., var. *brunneus* Engelm.
Juncus effusus gracilis Hook.
Juncus effusus L., var. *pacificus* F. & W.
Juncus ensifolius Wiks.
Juncus falcatus E. Meyer.
Juncus falcatus var. *alaskensis* Coville.
Juncus gerardi Loisel.
Juncus lescurii Boland.
Juncus occidentalis (Coville) Wiegand.
Juncus tenuis Willd.
Luzula campestris (L.) DC.
Luzula campestris (L.) DC., var. *subsessilis* Wats.
Luzula comosa E. Meyer.
Luzula comosa E. Meyer, var. *macrantha* Wats.
Luzula parviflora (Ehrh.) Desv.
Luzula spicata (L.) DC.

LILIACEÆ.

Allium acuminatum Hook.
Allium cernuum Roth.
Allium geyeri Wats.
Camassia leichtlinii (Baker) Coville.
Camassia quamash (Pursh) Coville.
Disporum oreganum (Wats.) B. & H.
Erythronium giganteum Lindl.
Fritillaria lanceolata Pursh.
Hookera hyacinthina (Lindl.) Kuntz.
Lilium parviflorum (Hook.) Holzinger.
Maianthemum bifolium dilitatum Wood.
Smilacina amplexicaulis Nutt.
Smilacina sessilifolia Nutt.
Stenanthium occidentale Gray.

Streptopus amplexifolius (L.) DC.
Tofieldia intermedia Rydb.
Trillium ovatum Pursh.
Veratrum viride Ait.
Zygadenus venenosus Wats.

IRIDACEÆ.

Hydastylus borealis Bicknell.
Olsynium grandiflorum (Dougl.) Raf.
Sisyrinchium birameum Piper.
Sisyrinchium idahoënse Bicknell.
Sisyrinchium macounii Bicknell.

ORCHIDACEÆ.

Calypso bulbosa (L.) Oakes.
Corallorrhiza maculata Raf.
Corallorrhiza mertensiana Bong.
Corallorrhiza stricta Lindl.
Habenaria dilitata Hook.
Habenaria elegans Boland.
Habenaria gracilis Wats.
Habenaria leucostachys (Lindl.) Wats.
Habenaria unalaschensis (Spreng.) Wats.
Listera caurina Piper.
Listera convallarioides (Sw.) Torr.
Peramium decipiens (Hook.) Ames.
Spiranthes romanzoffiana Cham.

SALICACEÆ.

Populus tremuloides Michx.
Populus trichocarpa T. & G.
Populus vancouveriana Trelease.
Salix geyeriana Anderss.
Salix geyeriana Anderss, X *sitchensis*.
Salix hookeriana Barratt.
Salix lasiandra Benth.
Salix sitchensis Sanson.
Salix scouleriana Barratt.

MYRICACEÆ.

Myrica gale L.

BETULACEÆ.

Betula occidentalis Hook.
Alnus oregona Nut.

FAGACEÆ.

Quercus garryana Dougl.

URTICACEÆ.

Ulmus campestris L.
Urtica lyallii Wats.

ARISTOLOCHIACEÆ.

Asarum caudatum Lindl.

POLYGONACEÆ.

Polygonum amphibium L.
Polygonum aviculare L.
Polygonum aviculare L., var. *vegetum* Ledeb.
Polygonum convolvulus L.
Polygonum erectum L.
Polygonum fowleri Robinson.
Polygonum hydropiperoides Michx.
Polygonum lapathifolium L.
Polygonum minimum Wats.
Polygonum paronychia Cham. & Schlecht.
Polygonum persicaria L.
Polygonum spergulariæforme Meisn.
Rumex acetosella L.
Rumex conglomeratus Murr.
Rumex crispus L.
Rumex obtusifolius L.
Rumex obtusifolius L., var. *discolor*.
Rumex occidentalis Wats.
Rumex persicarioides L.
Rumex pulcher L.

CHENOPODIACEÆ.

Atriplex patula L.
Atriplex patula L. var. *hastata* (L.) Gray.
Chenopodium album L.
Chenopodium humile Hook.
Chenopodium leptophyllum (Moq.) Nutt.
Salicornia ambigua Michx.
Suæda maritima (L.) Dumort.

AMARANTHACEÆ.

Amaranthus retroflexus L.

NYCTAGINACEÆ.

Abronia latifolia Esch.

CARYOPHYLLACEÆ.

Arenaria macrophylla Hook.
Arenaria serpyllifolia L.
Cerastium campestre Greene.
Cerastium viscosum L.
Dianthus armeria L.
Lychnis vespertina L.
Sagina crassicaulis Wats.
Sagina occidentalis Wats.
Saponaria officinalis L.
Silene anglica L.
Silene antirrhina L.
Silene gallica L.
Silene menziesii Hook.
Silene noctiflora L.
Silene scouleri Hook
Spergula arvensis L.
Spergula sativa Boenn.
Spergularia marina (L.) Griseb.
Spergularia rubra radicans Presl.
Stellaria borealis Bigel., var. *alpestris* (Fries) Britt.
Stellaria brachypetala Bong.
Stellaria crispa Cham. & Schlecht.
Stellaria longipes Goldie.
Stellaria media (L.) Cyrill.
Stellaria nitens Nutt.

PORTULACACEÆ.

Calandrinia caulescens menziesii Hook.
Claytonia dichotoma Nutt.
Claytonia howellii (Wats.) Piper.
Claytonia linearis Dougl.
Claytonia parviflora Dougl.
Claytonia parviflora Dougl., var. *depressa* Gray.
Claytonia parvifolia Moc.
Claytonia perfoliata Donn.
Claytonia sibirica L.
Claytonia spathulata Dougl.

NYMPHÆACEÆ.

Brasenia schreberi Gmel.
Nymphæa polysepala (Engelm.) Greene.

RANUNCULACEÆ.

Anemone lyallii Britt.
Anemone hudsoniana (DC.) Richards.
Anemone oregana Gray.
Anemone multifida Poir.
Aquilegia formosa Fisch.
Delphinium ajacis L.
Delphinium menziesii DC.
Myosurus apetalus lepturus Gray.
Ranunculus acris L.
Ranunculus aquatilis L.
Ranunculus aquatilis pantothrix (Brot.) Piper.
Ranunculus aquatilis L., var. *trichophyllus* Gray.
Ranunculus bongardi Greene.
Ranunculus bongardi Greene, var. *douglasii* Howell.
Ranunculus cymbalaria Pursh, var. *saximontana* Fernald.
Ranunculus flammula reptans (L.) Schlecht.
Ranunculus flammula (L.), var. *unalaschensis* (Bess.) Ledeb.
Ranunculus flammula (L.), var. *intermedius* Hook.
Ranunculus occidentalis Nutt.
Ranunculus orthorhynchus Hook.
Ranunculus othorhynchus Hook., var. *platyphyllus* Gray.
Ranunculus repens L.
Thalictrum occidentale Gray.

BERBERIDACEÆ.

Achlys triphylla (Smith) DC.
Berberis aquifolium Pursh.
Berberis nervosa Pursh.

PAPAVERACEÆ.

Eschscholzia californica Cham.
Papaver dubium L.
Papaver somniferum L.

FUMARIACEÆ.

Dicentra formosa DC.

CRUCIFERÆ.

Alyssum alyssoides (L.) Gouan.
Arabis hirsuta (L.) Scop.
Arabis glabra (L.) Bernh.
Arabis perfoliata Lam.
Brassica campestris L.
Cakile edentula (Bigel.) Hook.

Camelina sativa (L.) Crantz.
Capsella bursa-pastoris (L.) Medic.
Cardamine oligosperma Nutt.
Cardamine pennsylvanica Muhl.
Coronopus didymus (L.) Smith.
Dentaria tenella Pursh.
Draba verna L.
Erysimum occidentale (S. Wats.).
Hesperis matronalis L.
Lepidium menziesii DC.
Lepidium sativum L.
Lepidium strictum Rattan.
Neslia paniculata (L.)
Nasturtium palustre DC., var.
Radicula curvisiliqua (Hook.) Greene.
Radicula obtusa (Nutt.) Greene.
Radicula pacifica (Howell) Greene.
Raphanus sativus L.
Sisymbrium altissimum L.
Sisymbrium officinale L.
Sisymbrium officinale (L.), var. *leiocarpum* DC.

CRASSULACEÆ.

Sedum spathulifolium Hook.

SAXIFRAGACEÆ.

Heuchera cylindrica Dougl.
Heuchera micrantha Dougl.
Leptaxis menziesii (Pursh.) Raf.
Mitella pentandra Hook.
Ribes bracteosum Dougl.
Ribes divaricatum Dougl.
Ribes lacustre (Pers.) Poir.
Ribes lobbii Gray.
Ribes nigrum L.
Ribes sanguineum Pursh.
Saxifraga bongardi Presl.
Saxifraga integrifolia Hook.
Saxifraga rufidula (Small) Piper.
Tellima bulbifera Rydb.
Tellima grandiflora (Pursh) Dougl.
Tellima parviflora Hook.
Tiarella laciniata Hook.
Tiarella trifoliata L.

ROSACEÆ.

Alchemilla occidentalis Nutt.
Amelanchier florida Lindl.
Cotoneaster pyracantha (L.) Spach.
Cratægus brevispina (Dougl.) Heller.
Cratægus oxycanthoides L.
Drymocallis wrangeliana (Fisch. & Lall.) Rydb.
Fragaria bracteata Heller.
Fragaria crinita Rydb.
Fragaria cuneifolia Nutt.
Fragaria helleri Holzinger.
Geum macrophyllum Willd.
Geum oregonense Scheutz.
Osmaronia cerasiformis (T. & G.) Greene.
Physocarpus opulifolius (L.) Maxim.
Potentilla anserina L.
Potentilla dichora Rydb.
Potentilla gracilis Dougl.
Potentilla monspeliensis L.
Potentilla palustris (L.) Scop.
Potentilla recta L.
Prunus demissa (Nutt.) Dietr.
Prunus emarginata (Dougl.) Walp.
Prunus emarginata villosa Sudw.
Pyrus diversifolia Bong.
Rosa gymnocarpa Nutt.
Rosa nutkana Presl.
Rosa pisocarpa Gray.
Rosa rubiginosa L.
Rubus chamæmorus L.
Rubus laciniatus Willd.
Rubus leucodermis Dougl.
Rubus macropetalus Dougl.
Rubus parviflorus Nutt.
Rubus spectabilis Pursh.
Sanguisorba occidentale Nutt.
Spiræa discolor Pursh.
Spiræa douglasii Hook.
Spiræa menziesii Hook.

LEGUMINOSÆ.

Cytisus scoparius (L.) Link.
Hosackia bicolor Dougl.
Hosackia denticulata Drew.
Hosackia parviflora Benth.
Lathyrus latifolius L.
Lathyrus maritimus (L.) Bigel.
Lathyrus nuttallii Wats.
Lathyrus pauciflorus Fernald.
Lupinus bicolor Lindl.
Lupinus lepidus Dougl.
Lupinus littoralis Dougl.
Lupinus micranthus Dougl.
Lupinus microcarpus Sims.
Lupinus nootkatensis Donn.
Lupinus polyphyllus Lindl.
Medicago apiculata Willd.
Medicago hispida Gaertn.
Medicago lupubina L.
Medicago sativa L.
Melilotus alba Desr.

Melilotus indica (L.) All.
Melilotus officinalis (L.) Lam.
Psoralea physodes Dougl.
Robinia pseudo-acacia Dougl.
Trifolium albopurpureum T. & G.
Trifolium cyathiferum Lindl.
Trifolium dubium Sibth.
Trifolium fimbriatum Lindl.
Trifolium hybridum L.
Trifolium incarnatum L.
Trifolium microcephalum Pursh.
Trifolium microdon Hook & Arn.
Trifolium oliganthum Steud.
Trifolium pratense L.
Trifolium procumbens L.
Trifolium repens L.
Trifolium tridentatum Lindl.
Trifolium variegatum Nutt.
Ulex europæus L.
Vicia americana Muhl.
Vicia americana truncata (Nutt.) Brewer.
Vicia angustifolia (L.) Reich.
Vicia gigantea Hook.
Vicia hirsuta (L.) S. F. Gray.
Vicia sativa L.
Vicia tetrasperma (L.) Moench.

GERANIACEÆ.

Geranium bicknellii Britt.
Geranium carolinianum L.
Geranium dissectum L.
Geranium molle L.
Geranium pusillum Burm.
Erodium cicutarium (L.) L'Her.
Erodium moschatum (L.) L'Her.
Euphorbia peplus L.
Euphorbia serphyllifolia Pers.

ACERACEÆ.

Acer douglasii Hook.
Acer macrophyllum Pursh.

RHAMNACEÆ.

Ceanothus sanguineus Pursh.
Ceanothus velutinus Dougl.
Rhamnus purshiana DC.

MALVACEÆ.

Malva moschata L.
Malva parviflora L.
Malva rotundifolia L.
Malva sylvestris L.
Sidalcea hendersonii Wats.

VIOLACEÆ.

Viola adunca Smith.
Viola glabella Nutt.
Viola howellii Gray.
Viola macloskeyi Lloyd.
Viola nuttallii præmorsa (Dougal.) Wats.
Viola palustris L.
Viola retroscabra Greene.
Viola sarmentosa Dougl. Macoun.
Viola sempervirens Greene.
Viola tricolor L.

ELÆAGNACEÆ.

Shepherdia canadensis (L.) Nutt.

ONAGRACEÆ.

Boisduvalia densiflora (Lindl.) Wats.
Circæa pacifica Asch & Magn.
Epilobium adenocaulon Haussk.
Epilobium anagallidifolium Lam.
Epilobium angustifolium L.
Epilobium minutum Lindl.
Epilobium paniculatum Nutt.

ARALIACEÆ.

Fatsia horrida (Smith) B. & H.

UMBELLIFERÆ.

Angelica genuflexa Nutt.
Anthriscus sativa L.
Carum gairdneri (Hook. & Arn.) Gray.
Caucalis microcarpa Hook.
Cicuta douglasii (DC.) C. & R.
Cicuta purpurea Greene.
Cicuta vagans Greene.
Conioselinum gmelini (Cham. & Schlecht.) C. & R.
Conium maculatum L.
Daucus carota L.
Daucus pusillus Michx.
Heracleum lanatum Michx.
Hydrocotyle ranunculoides L.f.
Leptotænia dissecta Nutt.
Lomatium lævigatum (Nutt.) C. & R.
Lomatium nudicaule (Pursh) C. & R.
Lomatium utriculatum (Nutt.) C. & R.

Œnanthe sarmentosa Presl.
Osmorhiza divaricata Nutt.
Osmorhiza leibergii (C. & R.) Suksdorf.
Pastinaca sativa L.
Sanicula arctopoides H. & A.
Sanicula bipinnatifida Dougl.
Sanicula howellii C. & R.
Sanicula menziesii Hook. & Arn.

CORNACEÆ.

Cornus canadensis L.
Cornus nuttallii Audubon.
Cornus occidentalis (T. & G.) Coville.

ERICACEÆ.

Allotropa virgata T. & G.
Arbutus menziesii Pursh.
Arctostaphylos tomentosa (Pursh) Dougl.
Arctostaphylos uva-ursi (L.) Spreng.
Chimaphila ubellata (L.) Nutt.
Gaultheria ovatifolia Gray.
Hypopitys hypopitys (L.) Small.
Kalmia glauca Ait.
Pterospora andromedea Nutt.
Pyrola aphylla Smith.
Pyrola bracteata Hook.
Pyrola elata Nutt.
Pyrola picta Smith.
Pyrola picta dentata Smith.
Pyrola picta integra Gray.
Vaccinium cæspitosum Michx.
Vaccinium cuneifolium Nutt.
Vaccinium oxycoccus intermedius (Gray) Piper.

PLUMBAGINACEÆ.

Statice armeria L.

PRIMULACEÆ.

Anagallis arvensis L.
Centunculus minimus L.
Dodecatheon latifolium (Hook.) Piper.
Dodecatheon vulgare (Hook.) Piper.
Glaux maritima L.
Lysimachia thyrsiflora L.
Trientalis arctica Fisch.
Trientalis latifolia Hook.

GENTIANACEÆ.

Centaurium centaurium (L.) W. F. Wight.
Gentiana acuta Michx.
Gentiana sceptrum Griseb.
Menyanthes trifoliata L.

APOCYNACEÆ.

Apocynum androsæmifolium L.

CONVOLVULACEÆ.

Convolvulus arvensis L.
Convolvulus sepium L.
Cuscuta squamigera Engelm.
Cuscuta arvensis Beyrich.
Cuscuta epithymum Murr.

POLEMONIACEÆ.

Collomia heterophylla Hook.
Collomia grandiflora Dougl.
Gilia achilleæfolia Benth.
Gilia bicolor (Nutt.) Piper.
Gilia gracilis (Dougl.) Hook.
Gilia squarrosa H. & A.

HYDROPHYLLACEÆ.

Nemophila parviflora Dougl.
Nemophila sepulta Parish.
Phacelia linearis (Pursh) Holzinger.
Romanzoffia sitchensis Bong.

BORAGINACEÆ.

Allocarya plebeia Greene.
Amsinckia intermedia Fisch & Meyer.
Amsinckia lycopsoides Lehm.
Myosotis arvensis (L.) Hill.
Myosotis laxa Lehm.
Myosotis versicolor (Pers.) J. E. Smith.
Plagiobothrys tenellus (Nutt.) Gray.

VERBENACEÆ.

Verbena hastata L.

LABIATÆ.

Lamium amplexicaule L.
Lycopus Americanus Muhl.
Lycopus uniflorus Michx.
Marrubium vulgare L.
Mentha arvensis L., var. *canadensis* (L.) Briquet.
Mentha spicata viridis L.
Micromeria chamissonis (Benth.) Greene.
Nepeta hederacea (L.) Trevisan.
Prunella vulgaris L.
Scutellaria galericulata L.
Stachys ciliata Dougl.

SOLANACEÆ.

Solanum nigrum var. *villosum* L.

SCROPHULARIACEÆ.

Castilleja angustifolia bradburii (Nutt.) Fernald.
Castilleja levisecta Greenman.
Collinsia grandiflora pusilla Gray.
Collinsia tenella (Pursh) Piper.
Limosella tenuifolia Wolf.
Linaria vulgaris Hill.
Mimulus alsinoides Dougl.
Mimulus grandiflorus Howell.
Mimulus langsdorfii Donn.
Mimulus moschatus Dougl.
Mimulus nasutus Greene.
Orthocarpus attenuatus Gray.
Orthocarpus bracteosus Benth.
Orthocarpus hispidus Benth.
Orthocarpus pusillus Benth.
Rhinanthus crista-galli L.
Veronica arvensis L.
Veronica americana Schwein.
Veronica peregrina L.
Veronica serpyllifolia L.
Veronica scutellata L.
Veronica tournefortii C.C. Gmel.

LENTIBULARIACEÆ.

Utricularia vulgaris L., var. *americana* Gray.

OROBANCHACEÆ.

Orobanche uniflora L.
Orobanche comosa Hook.
Orobanche pinetorum Gray.

PLANTAGINACEÆ.

Plantago bigelovii Gray.
Plantago lanceolata L.
Plantago macrocarpa Cham. & Schlecht.
Plantago major L.
Plantago major L., var. *asiatica* (L.) Dcne.

RUBIACEÆ.

Galium aparine L.
Galium aparine L., var. *vaillantii* (DC.) Koch.
Galium boreale L.
Galium trifidum pacificum Wiegand.
Galium triflorum Michx.
Sherardia arvensis L.

CAPRIFOLIACEÆ.

Linnæa americana Forbes.
Lonicera ciliosa (Pursh) Poir.
Lonicera hispidula Dougl.
Lonicera involucrata Banks.
Sambucus callicarpa Greene.
Sambucus glauca Nutt.
Symphoricarpus mollis Nutt.
Symphoricarpus racemosus Michx.

VALERIANACEÆ.

Valerianella anomala Gray
Valerianella congesta Lindl.

CUCURBITACEÆ.

Echinocystis oregana T. & G.

CAMPANULACEÆ.

Campanula scouleri Hook.
Specularia perfoliata (L.) A. DC.

COMPOSITÆ.

Achillea lanulosa Nutt.
Achillea millefolium L.
Adenocaulon bicolor Hook.
Agoseris grandiflora Nutt.

Agoseris laciniata (Nutt.) Greene.
Anaphalis margaritacea (L.) B. & H.
Anaphalis margaritacea occidentalis Greene.
Anaphalis margaritacea subalpina Gray.
Antennaria concolor Piper.
Antennaria howellii Greene.
Anthemis arvensis L.
Arctium minus Bernh.
Arctium minus Bernh., var. *tomentosum* Mill.
Arnica amplexicaulis Nutt.
Arnica latifolia Bong.
Artemisia suksdorfii Piper.
Aster douglasii Lindl.
Aster foliaceus.
Balsamorhiza deltoidea.
Bellis perennis L.
Bidens amplissima Greene.
Cichorium intybus L.
Chrysanthemum leucanthemum L.
Chrysanthemum parthenium (L.) Pers.
Cirsium arvense (L.) Scop.
Cirsium edule Nutt.
Cirsium lanceolatum (L.) Scop.
Cotula coronopifolia L.
Crepis capillaris (L.) Wallr.
Crocidium multicaule Hook.
Erigeron canadensis L.
Erigeron philadelphicus L.
Eriophyllum lanatum (Pursh) Forbes.
Franseria bipinnatifida Nutt.
Gnaphalium purpureum L.
Gnaphalium palustre Nutt.
Gnaphalium microcephalum Nutt.
Grindelia integrifolia DC.
Helenium autumnale grandiflorum (Nutt.) Gray.
Hieracium albiflorum Hook.
Hypochæris glabra L.
Hypochæris radicata L.
Lactuca scariola integrata Gren. & Godr.
Lactuca spicata (Lam.) Hitchc.
Lapsana communis L.
Luina hypoleuca Benth.
Madia exigua (Smith) Greene.
Madia racemosa (Nutt.) T. & G.
Madia sativa Molina.
Matricaria matricarioides (Less.) Porter.
Petasites speciosa (Nutt.) Piper.
Preanthes alata (Hook.) Gray.
Senecio vulgaris L.
Senecio sylvaticus L.
Silybum marianum (L.) Gaertn.
Solidago elongata Nutt.
Solidago glutinosa Nutt.
Solidago lepida DC.
Sonchus asper (L.) Hill.
Sonchus oleraceus L.
Tanacetum vulgare L.
Taraxacum officinale Weber.
Tragopogon porrifolius L.

LIST OF MUSCI COLLECTED AND PRESENTED TO THE PROVINCIAL MUSEUM.

By Professor John Macoun.

SPHAGNACEÆ.

Sphagnum acutifolium Russ & Warnst.
Sphagnum cuspidatum Russ & Warnst.
Sphagnum fuscum Von Klinggraeff.
Sphagnum papillosum Lindb.
Sphagnum squarrosum Pers.

ANDREÆACEÆ.

Andreæa petrophila Ehrh.

DICRANACEÆ.

Dicranella heteromalla Schimp.
Dicranum congestum Brid.
Dicranum fuscescens Turn.
Dicranum howellii.
Dicranum scoparum Hedw.
Dicranum strictum Drumm.
Dicranum subpalustre C. M. & Kindb.
Dicranum sulcatum Kindb.

CERATODONTEÆ.

Ceratodon pupureus Brid.
Distichium capillaceum Brunch & Schimp.

POTTIEÆ.

Leptotrichum flexicaule Hampe.
Barbula convoluta Hedw.
Barbula leptotricha C. M. & Kindb.
Barbula megalocarpa Kindb.
Barbula mucronifolia Bruch & Schimp.
Barbula ruralis Hedw.
Barbula subulata Beauv.
Barbula vinealis Braun.

GRIMMIEÆ.

Scouleria muelleri Kindb.
Racomitrium canescens Brid.
Racomitrium ericoides Bruch & Schimp.
Racomitrium heterostichum Brid.
Racomitrium varium.
Hedwigia ciliata Ehrh., var. *leucophœa* Schimp.
Braunia californica Lesq.
Braunia californica var. *pilifera* Lesq. & James.

ORTHOTRICHEÆ.

Amphoridium californicum Lesq. & James.
Ulota phyllantha Mitt.
Orthotrichum lyellii Hook & Tayl.
Orthotrichum puchellum Brunton.
Encalypta streptocarpa Hedw.

PHYSCOMITRIEÆ.

Funaria hygrometrica Sibth., var. *calvescens* Bruch & Schimp.

BARTRAMIEÆ.

Bartramia pomiformis Hedw.
Philonotis macounii Lesq. & James.
Philonotis fontana Brid.
Philonotis marchica Brid.

BRYEÆ.

Leptobryum pyriforme Schimp.
Webera albicans Schimp.
Webera nutans Hedw.
Bryum capillare Linn.
Bryum cirrhatum Hoppe. & Hornsch.
Mnium affins Bland.
Mnium glabrescens.
Mnium inclinatum Lindb.
Mnium insigne Mitt.
Mnium menziesii C. Muell.
Mnium spinulosum Bruch. & Schimp.
Mnium venustrum Mitt.

AULACOMNIUM.

Aulacomnium androgynum Schwaegr.
Aulacomnium palustre Schwaegr.

TIMMIEÆ.

Timmia austriaca Hewd.

GEORGIACEÆ.

Georgia genuflexa.

POLYTRICHEÆ.

Atrichum undulatum Beauv.
Catharineæ undulata (L.) Web. & Mohr.
Pogonatum alpinum Roehl.
Pogonatum alpinum var. *septentrionale* Brid.
Polytrichum commune Lindb.
Polytrichum juniperinum Willd.
Polytrichum piliferum Schreb.
Polytrichum strictum Banks.

FONTINALCÆ.

Fontinalis antipyretica Linn.
Fontinalis chrysaphylla Card.
Fontinalis kinbergii Can. Musc.
Fontinalis patens.
Dichelyma cylindricarpum Aust.

NECKEREÆ.

Alsia abietina Sulliv.
Neckera douglasii Hook.
Neckera douglasii Hook., var. *macounii* Kindb.
Neckera menziesii Drumm.
Homalia macounii C. M. & Kindb.

LEUCODONTEÆ.

Antitrichia californica Sulliv.

HYPNEÆ.

Heterocladium heteroptoides Best.
Heterocladium heteroptoides var. *filicens* Best.
Thuidium crispifolium (Hook.) Kindb.
Camptothecium nuttallii Kindb.
Camptothecium lutescens Bruch. & Schimp.
Brachythecium albicans Bruch. & Schimp.
Brachythecium asperrimum Mitt.

Brachythecium rivulare Bruch. & Schimp.
Brachythecium rutabulum Bruch. & Schimp.
Brachythecium salebrosum Bruch. & Schimp.
Scleropodium cæspitosum Bruch. & Schimp.
Scleropodium calpophyllum.
Scleropodium obtusifolium Kindb.
Isothecium cardoti Kindb.
Isothecium brewerianum Lesq. & James.
Isothecium lentum Lesq. & James.
Isothecium myurellum Kindb.
Isothecium nuttallii.
Isothecium stoloniferum Brid.
Eurynchium stokesii Bruch. & Schimp.
Eurynchium semiasperum C. M. & Kindb.
Raphidostegium roellii Ren. & Card.
Thamnium liebergii.
Plagiothecium denticulatum Bruch. & Schimp.
Plagiothecium erichaphcrum.
Plagiothecium sylvaticum Bruch. & Schimp.
Plagiothecium undulatum Bruch. & Schimp.
Amblystegium serpens Bruch. & Schimp.
Amblystegium riparium Bruch. & Schimp.
Hypnum circinale Hook.
Hypnum curvifolium Hedw.
Hypnum cohcarens.
Hypnum filicinum Linn.
Hypnum kneiffii Bruch. & Schimp.
Hypnum kneiffii var. *gracilescens* Bruch. & Schimp.
Hypnum palustre Huds.
Hypnum robustum Hook.
Hypnum subimponens Lesq.
Hypnum vernicosum Lindb.
Hylocomium splendens (Hedw.) Schimp.

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